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GENERAL DYNAMICS NEWS

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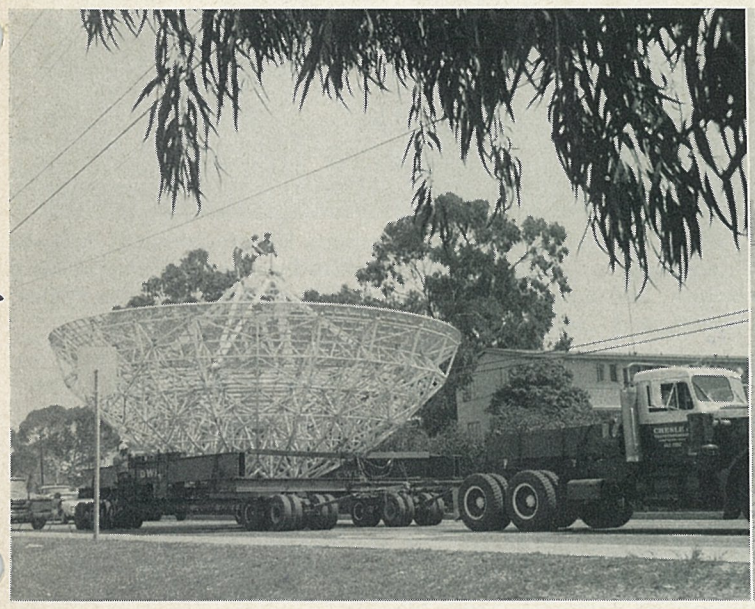

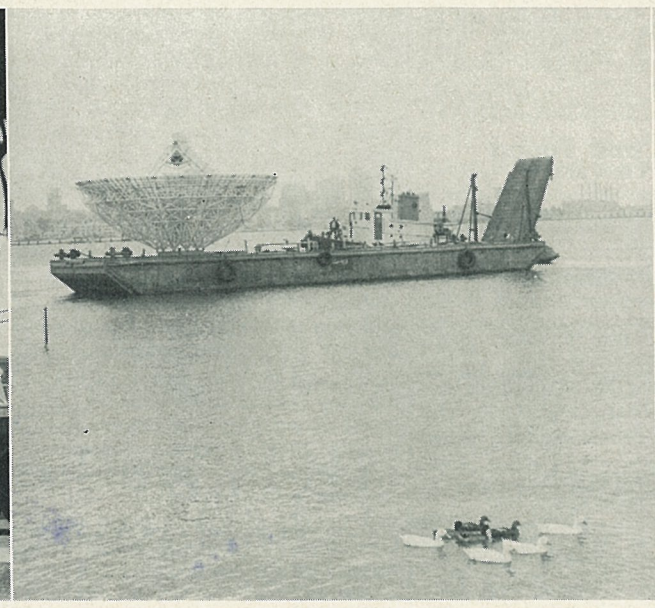

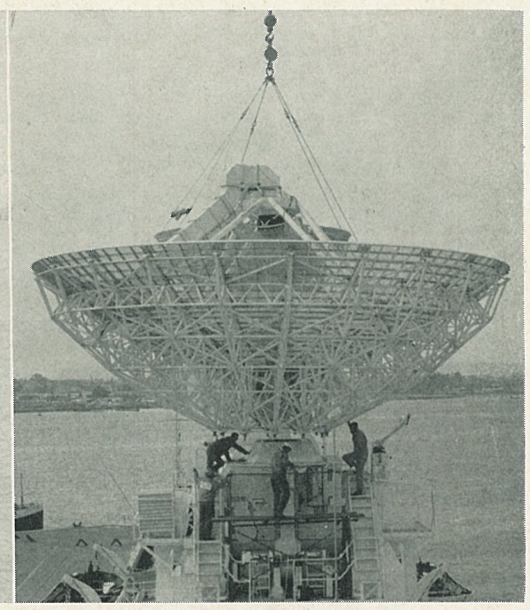

ARNOLD ANTENNA — Forty-foot-diameter L-band antenna for tracking ship Arnold moves down Linda Vista Road, left photo, after assembly and test at Kearny Mesa plant, San Diego. In center photo, antenna is barged from General Dynamics' Harbor Drive facility to 10th Avenue Terminal after tracking ship's arrival in port. Photo at right shows Electro Dynamic Electronics operation personnel bolting antenna into position aboard ship under direction of Yuris "George" Nora.

Checkout and Sea Tests Climax Antenna Task

Electro Dynamic Division Electronics operation personnel completed testing of a 40-foot-diameter antenna on the tracking ship USNS Gen. H. H. Arnold last month to bring to a close a $10-million five-year program in which the Arnold and a sister ship, the USNS Gen. Hoyt S. Vandenberg, were equipped with L-band tracking radar systems.

The 40-foot L-band antenna for the Arnold had been designed and fabricated by Radiation Systems Inc. of McLean, Va., under Electronics - SD subcontract and shipped to San Diego by rail several months ago.

After being reassembled and installed on a pedestal at the Kearny Mesa plant, the antenna underwent a comprehensive testing program conducted jointly by Electronics-SD and Convair Aerospace engineers and support personnel.

Following completion of the tests, the assembled five-ton antenna was trucked to the General Dynamics Harbor Drive facility in a two-day move by special truck that required the services of 27 San Diego police patrolmen for traffic control and crews from the San Diego Gas & Electric Co. and Pacific Telephone Co. to clear overhead wiring.

When the Arnold returned to port several weeks later, the antenna was barged across San Diego bay to the 10th Avenue Terminal and was hoisted aboard by crane.

Antenna installation and testing aboard the USNS Arnold was under the direction of Yuris "George" Nora. Jim Sheehan and Russ Breeze of the plant engineering section handled arrangements for movement of the antenna from Kearny Mesa to the ship.

Among those assisting with the test program at Kearny Mesa were Gary Vance of Electro Dynamic and John Dobyne, Stan Fletcher, Tony Sansone, and Tom Kramer of Convair Aerospace-SD.

'Plus Points' in Safety Will Be Stressed in '71

Accentuate the "positive" and eliminate the "negative" will be the new approach to safety for 1971 according to D. D. Dimmitt, chief of safety and fire at Convair Aerospace-SD.

For years the division has used the negative system during safety checks for its annual safety contest, assessing demerits for violations in various safety categories.

During 1971, however, departments will be able to accumulate positive "plus" points towards their overall safety records. Two points will be awarded departments for each Safety Employe Suggestion accepted for implementation. Five plus points will be awarded for each property damage report or near-miss accident report submitted.

Plans are under way to recognize employes of the department winning the 1971 safety contest. The safety office will sponsor a picnic for employes and their families in lieu of an awards banquet attended by supervision.

Additionally, Dimmitt said, during each month of 1971 a different safety theme will be stressed. January will emphasize orderliness and cleanliness with eye protection planned as February's theme. During March concentration will be on job analysis and physical codes.

The new positive approach, Dimmitt explained, aimed at motivating the individual employe towards safety, will benefit the division, the department, and the individual himself.

Graduates Make Trip to Texas To Receive Bachelor Degrees

Thirty-six from Convair Aerospace Division's San Diego operation last month were awarded baccalaureate diplomas in industrial technology by Texas State Technical Institute in Waco, Texas following successful completion of an intensive, seven-month in-plant executive study program conducted at San Diego.

Dr. Roy W. Dugger, president of the institute, presented the diplomas to 26 of the recipients who had flown to the sprawling Texas State Tech main campus (formerly James Connally Air Force Base) for a graduation reception and dinner Dec. 18.

Each of the graduates had been

(Continued on Page 2)

Bavasi Will Speak At Sports Dinner

Buzzie Bavasi, president of the San Diego Padres baseball club, will relate some of the highlights and interesting incidents from his career in baseball at a "sports night" stag dinner for Convair Management Association members Friday, Jan. 22, in the Balboa Park Club.

Tickets are on sale at $3 each from association boosters. The carne asada (broiled sirloin) dinner with Michelob beer will be served at 6:30 p.m. with the program to get underway at 8.

The Convair Aerospace-SD launch vehicle programs department is meeting sponsor with Ken Newton, director, as executive sponsor and Paul Green as chairman of the planning committee for the event.

EEO Coordinators Named For Communication Link

Equal Employment Opportunity (EEO) coordinators have been appointed for each major department within Convair Aerospace Division's San Diego operation.

Gene Fox, manager of personnel and Equal Employment Opportunity coordinator for the San Diego operation, said the EEO coordinators will be responsible for two major assignments.

"First, they will ensure a two-way communications link between minorities and top management to keep information flowing on items such as educational and training opportunities, attitudes, problem areas, and San Diego operation EEO objectives," he said.

"Second, they will assist in the preparation of departmental affirmative action plans which then will become part of the San Diego operation's overall plan. They also will be responsible for periodic audits to measure departmental progress toward affirmative action goals and to make recommendations for improvement where needed."

The San Diego operation in October underwent an Equal Employment Opportunity contract compliance review and its 1970 affirmative action plan was audited and approved by the office

(Continued on Page 2)

Needy Families 'Adopted,' Assisted at Christmas

Thanks to the generosity of employes in several Convair Aerospace Division departments, Christmas for 18 disadvantaged San Diego families was a little happier the past year. Material department, the biggest single contributor, and management systems provided for 13 of the families.

The material effort benefitted ten less fortunate families with 55 children. Sheriff and Police departments provided names and employes, for the fourth consecutive year, went to work gathering food, clothing and money.

Warren Jones, who coordinated the material department effort, reports nearly $1,200 was collected, enabling each family member to receive a $20 gift certificate. Additionally, dry cleaning establishments were canvassed for unclaimed clothes and these were made available for distribution.

Key committee members working with Jones were John Mow-

(Continued on Page 2)

HELPING HAND—Generosity of material department personnel brightened lives of number of children and parents during holiday season. Ten disadvantaged families received food, clothing and gift certificates at Christmas. Thelma Aubrey, John Mowatt and Barbara Wilson prepare boxes for delivery.

Modified Atlas Arcs Payloads Across Range

Atlas 105F became the 100th Atlas launched in the Ballistic Missile Re-entry Systems (BMRS) program for the Air Force Space and Missile Systems Organization when it lifted off from Vandenberg AFB on Dec. 22.

The modified missile, refurbished by Convair Aerospace Division after having been stored since its removal from Strategic Air Command operational inventory in the mid-1960s, was used with a payload delivery system to arc a number of "payloads" across the Western Test Range on an Advanced Ballistic Re-entry System (ABRES) mission.

Some of the free world's most sophisticated tracking equipment at ground stations and aboard ships and aircraft was used to track and "identify" the payloads as they re-entered the atmosphere over the Pacific.

The BMRS program includes Air Force, Army, and Navy launches for ABRES and Advanced Ballistic Missile Defense Agency (ABMDA) missions—with all booster technical needs filled through the Air Force Space and Missile Systems Organization.

Eighty-nine of the 100 BMRS launches since 1962 have been successful.

The current BMRS program dates back to when the NIKE Target program began to support Army NIKE radar development with the launch of Atlas 159D from Vandenberg in 1962.

Primary objective of the ABRES

(Continued on Page 5)

Log Book Entries

Service Emblems

CONVAIR

Service emblems due between Dec. 16 and Dec. 31, 1970.

Thirty-five year: Dept. 031, G. A. Dewey; 149, B. R. Swarts; 759, T. L. Gilchrist.

Thirty-year: Dept. 019, A. C. Martin; 031, M. G. Henderson; 142, C. R. Mabry; 149, R. E. Harper; 192, R. E. Brown; 222, W. R. Kemper; 224, R. H. Moore; 403, K. E. Fountain.

Twenty-five year: Dept. 015, P. R. Barley; 110, J. S. Boaz; 226, Cora F. Kempner.

Twenty-year: Dept. 001, J. W. Palmore; 131, L. J. Shunneson; 142, L. Helton; 144, T. J. Marcella; 148, Ruth R. Taddeo; 193, G. F. Lawrence; 195, W. Minando; 204, D. D. Clough; 222, H. G. Guenther; 223, W. F. Ward; 227, Frances E. O'Leary; 229, Betty F. Kovers, H. Schultz, Jr.; 400, C. P. Olsen; 401, S. W. Graves, E. Owens; 407, R. G. Sanders; 511, W. E. Gibb; 545, W. R. Hoover; 761, B. F. Murphy, O. L. Wertanen; 831, T. W. Petitt; 860, J. H. Kunkle.

Fifteen-year: Dept. 002, J. V. Smith; 046, R. Szymczak, C. A. Wilson; 110, E. R. Joos; 131, J. R. Cluck; 142, B. W. Daniels; 143, Gertrude Neuhart, F. G. Niece Jr.; 148, S. C. McFarland; 149, C. E. Allan, C. T. Allen; 191, R. J. Hostetler; 204, A. M. Pilot; 205, H. J. Brenner; 222, A. B. Cross, D. R. Jastroff; 226, J. J. Gonzales, E. M. Haveman; 400, H. M. Newbery; 401, G. A. Gill; 452, N. S. Munson; 515, R. R. Sharp; 572, M. C. Miyaji; 590, L. O. Anding; 780, Nancy Jackson; 802, Allagean Howard, D. S. Strone; 840, R. K. Bentler, Gertrude M. Bouchee, Josephine Hall Hoyt; 952, D. A. Heald; 989, D. M. Lemons.

Ten-year: Dept. 002, S. S. Martinez; 046, Kathryn P. Hall, Joy R. Kinder, W. M. Houston; 101, Ruby E. Richey; 204, P. H. Celto, J. L. Doherty; 221, C. Williams; 250, K. J. Croft; 400, Wilma J. Denham, W. E. Johnson; 517, L. B. Parker; 950, B. T. Emerson; 952, P. Slysh; 985, P. Stephens.

ELECTRO DYNAMIC

Twenty-five-year: Dept. 716, E. A. Aschenbrener.

Fifteen-year: Dept. 523, Pearle O. Faulker; 612, V. Salgado.

Ten-year: Dept. 391, E. Glover; 712, S. R. Hill; 915, M. K. Weiser.

Awards

CONVAIR

Employe Suggestion awards approved for week ending Dec. 11:

S. Adamov, Dept. 045-0, $110.60; R. A. Alex, 130-2, $78; M. Alianelli, 221-1, $32.05; D. C. Baillif, 015-0, $16.20; J. H. Beals, 780-4, $15; M. F. Benson, 046-0, $15; D. J. Betz, 019-0, $15; R. M. Braeutigam Jr., 027-0, $15; O. W. Brower, 565-3, $15; M. D. Chambers, 565-3, $80.20; J. E. Conklin, 027-0, $40.20; J. T. Dragonetti, 250-2, $15; S. J. Gwazdacz, 780-4, $16.40; J. B. Hinojos, 015-0, $15; D. J. Insky, 250-0, $15; R. B. Jamieson, 019-0, $15; C. L. Johnson, 565-1, $474.70; J. L. Killeaney, 027-0, $15; R. V. Lucero, 019-0, $15.

L. A. Moll, 019-0, $15.30; M. B. Murrah, 780-4, $16.40; A. J. Nybo, 518-0, $52.75; A. Rivas, 518-0, $52.75; G. A. Rivers, 780-4, $62.50; J. G. Soule, 524-5, $15; P. J. Stacey, 565-1, $168; F. J. Steglic, 015-0, $224.10 (two awards); M. E. Walker, 149-3, $15; C. W. Weber Jr., 574-2, $35.10 (two awards); L. H. Wilson, 027-0, $15; W. L. Woodward, 015-0, $22.10; R. M. Zeich, 531-2, $15.

Employe Suggestion awards approved for week ending Dec. 18.

J. B. Anderson, Dept. 149, $43.20; E. Angulo, 149, $15; J. F. Batchelder, 046, $15.90; D. K. Bauers, 019, $15; J. A. Brown, 518, $81.10; 840, B. Cano, $125.80; R. Chavez, 810, $123.40; C. R. Clark, 453, $15; P. Costa, O. H. Miller Jr., 001, $24.55 each (joint award); R. H. Cowie, 401, $25; T. C. DeBolt, 205, $15; T. J. Evans, 046, $15; J. W. Eckert, C. E. Roach Jr., 761, $22.50 each (three joint awards); G. E. Finley, 015, $15; M. F. Greenhalgh, 148, $15.

Also R. C. Hagley, 962, $322.60; E. E. Hansel, 810, $57.20; C. M. Hay, 551, $15; J. L. Johns, 979, $25; T. E. Lowrey, 002, $15; J. Medina, 131, $15; L. M. Moore, 511, $30 (two awards); I. P. Mouet, 046, $15; S. Persley, 027, $15; F. M. Preite, 001, $15; M. J. Saunders, 524, $15; G. R. Simpson, 027, $30 (two awards); A. S. Spitzer, 142, $75; M. J. Vaszorich, 019, $161.40 (two awards).

Papers Presented

CONVAIR

PETERSON—D. W., Dept. 533, "Synthesis of four-bar linkages using interactive computer graphics and synthesis curves." At ASME Mechanisms Conference, Columbus, Ohio, Nov. 2-4.

ROYE—C. E., Dept. 591, "Careers in manufacturing engineering." At San Diego State College, San Diego, Calif. Nov. 21.

Papers presented at the Liquid Propulsion Meeting, Las Vegas, Nev., Nov. 18:

BLATT—M. H., Dept. 584, "Liquid expulsion with cryogenic capillary devices."

LEONHARD—K. E. & R. E. TATRO, Dept. 548, "Development of a flight weight, long term cryogenic storage system."

"Cost Reducers"

CONVAIR

10-award pin—S. Cohen, Dept. 141.

5-award pins — D. R. Bryson, Dept. 046; C. W. Johnson, 002; J. D. Jones, 015; I. P. Mouet, 046, S. H. O'Leary, 533.

Invention Disclosures

CONVAIR

BROWN — J. L., Dept. 031, Wheel Grinder.

COOPER—G. C., Dept. 507. Automatic Milling Torque Measure and Control.

FOSTER — O. T., Dept. 250, Laserguage Mounting Fixture.

JONES—T. G. & V. A. LAURITZEN, Dept. 057, Kit to Modify Portable Ice Chest into Portable Refrigerator.

KAREMAA — Aadu, Dept. 583, Wing Upper Surface Flap.

McNAMARA—R. C., Dept. 512, Material Sciences– Zero G Heating and Experiment Chamber.

STEPHENS—P. B., Dept. 584, Tankage/Structure for Cryogenic Reuseable Boosters.

VAUGHAN — D. H., Dept. 512, Expandable Truss Bridge Structure.

Lost and Found

CONVAIR

LOST—Tie tac near southwest bay of Bldg. 2, LF plant in early December. Please call R. J. Came, ext. 1435 LF or (home) 444-8098.

Retirements

ELECTRO DYNAMIC

FREDERICKS—Carmen P., Dept. 423. Seniority date Feb. 8, 1952, retired Jan. 1.

JACKSON—Horace F., Dept. 712. Seniority date Nov. 27, 1946, retired Dec. 1, 1970.

LAWRENCE — Alice W., Dept. 423. Seniority date March 7, 1951, retired Jan. 1.

Personals

CONVAIR

My sincere thanks and appreciation to all my friends at Convair for their generosity and good wishes during my current illness.

E. C. Brown, Dept. 149-9.

* * *

The family of Kenneth Carlile wishes to express their appreciation for the sympathy and kindness shown to them during his illness and death.

General Dynamics News

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Convair Aerospace editorial offices: Kearny Mesa plant, Bldg. 8, Mail Zone 104-61, P.O. Box 1128, San Diego, Calif. 92112. Phone 277-8900, ext. 3322.

Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P. O. Box 1950, San Diego 92112.

Coordinators Of EEO Named

(Continued from Page 1)

of contract compliance of the Defense Contract Administration Services Region - Los Angeles.

Fox said the review showed Convair Aerospace-SD's minority population to be 12.1 per cent—up from 7.5 per cent in 1967. "This is the highest percentage for any operation within the Corporation," he said.

The new EEO coordinators, listed by organization, include:

Reliability—E. E. Chavez, ext. 1895 LF, and A. W. Reed, ext. 3542 KM.

Material—L.C. Perry, ext. 1031 KM, and A. K. Pringle, ext. 1855 KM.

Controller—J. E. McCann, ext. 1766 KM, and J. F. Scanlon, ext. 2291 KM.

Launch vehicle programs — Rudy Romero, ext. 3432 KM, and P. R. Green, ext. 1641 KM.

Research and engineering — William Garcia, ext. 1089 KM, and G. L. Peyton, ext. 671 LF.

Marketing—F. M. Castro, ext. 417 LF, and O. W. Harper, ext. 1066 LF.

Industrial Relations — D. M. "Roy" Richardson, ext. 673 LF, and Fox, ext. 2133 KM.

Operations—M. F. Moseley, ext. 559 LF.

Fox said the operations department plans to appoint EEO coordinators in the near future for each of its buildings. They will work through Moseley to achieve objectives of their departmental affirmative action plan.

You can buy U. S. Savings Bonds regularly for as little as 50 cents a week.

Needy Families Are 'Adopted'

(Continued from Page 1)

att, responsible for family selection; Dick Archibald, cash collection; Dutch Schultz, packing and delivery; Cliff Glasgow, other collections.

The management systems program was headed by Bob Bacon with help from Mike Kosmos, Lloyd Boyles, Max Miesse, and Jack Waller. Several cartons of food, toys and clothes, in addition to $366 in cash, were collected.

Dept. 027 employes at AF Plant 19 collected gifts, clothing, food and cash for two families whose names were obtained from the Salvation Army. Frank P. "Tex" Vining handled details with help from group foremen in each area.

Bill Sutherland, Jim Haskins and Bob Westbrook headed an effort by structures and materials group and weights group in helping one family during Xmas. Instead of sending Christmas cards to one another, group personnel put the money towards a $50 clothing gift certificate.

A family of five received food, toys, turkey, ham and a $25 gift certificate for clothes through the generosity of logistics section. Frank Munson and Norm Sulek were coordinators.

Another family received nearly 150 lbs. of food, toys, clothes and $10 from the CRA Rockhounds according to Ken McCafferty, club president.

Nearly $50 was taken from the reflection pool at Kearny Mesa and turned over to the San Diego Police Department towards help for a needy family.

Montague Re-elected By Film Producers

Robert Montague, chief of motion pictures and television for Convair Aerospace-SD, has been re-elected president of the Information Film Producers of America.

He was the first president elected by the organization from outside the Hollywood-Los Angeles area.

Under Montague's leadership last year, the IFPA almost doubled its membership, increased its chapters from five to 10 in major cities across the country, and had the largest national conference in its history in Newport Beach in November.

This year's conference has been scheduled Oct. 14-16 in San Diego.

Investing Know-How Called Wealth Secret

"The great secret of wealth is knowing how to invest," says Rodney H. Burreson, president of R. H. Burreson and Co. which provides professional money management assistance to investors.

Burreson will present an investment seminar sponsored by the Convair Management Association at 7 p.m., Jan. 21 at the Kearny Mesa plant.

There is no charge for the seminar and registration forms are available from all management boosters.

WACO BOUND—Convair Aerospace-SD group waves farewell before flight to Texas to receive degrees from Texas State Technical Institute. Serving as hostesses (front) were Kathy Sullivan, Velma Dimmitt, and Carol Owens.

Graduates Fly to Texas To Receive Their Degrees

(Continued from Page 1)

specially selected for the program. Most previously had earned about 100 semester hours of transferable credit from accredited colleges, have had at least 10 years of industrial or business experience, and hold supervisory positions with the division.

Receiving degrees in the innovative and experimental program, the first of its kind for industry and education, were Len Andling, Dan Applegate, Howard Auten, Fred Baebler, Bob Bailey, Paul Bazler, Ray Benson, Ray Calen, Bill Chana, Mickey Cornwall, Dick Cree, Jack Croft, Del Dimmitt, Ralph Dow, Ken Geyer, Walt Hicks, Norm Keith, Russ Medlock, Ken Miller, Bob Montague, and Chieko Moriyama.

Also Paul Neuenswander, John Ona, Carol Owens, Jim Paulson, Gil Peyton, George Putness, Bill Roberts, Norm Rutherford, Don Sullivan, Roger Wallace, Lyle Wood, Howard Wright, Ed Yager, Al Yankee, and Paul Yarrington.

Nine courses were included in the baccalaureate program with those enrolled attending classes from 5 to 9 p.m. two to five nights a week from June 2 through Dec. 10 and devoting other night and weekend hours to paper preparation and study group sessions.

All class sessions were held in the Bldg. 2 presentation room at the Kearny Mesa plant except for three weeks in August when the group attended the Institute of World Affairs at San Diego State College as part of one of the in-plant courses.

The curriculum included advanced courses in organizational development and human resources administration; operations research, mathematical models in business and statistical decision theory; business enterprise in modern society; financial management, legal aspects of management, and public regulation of business; economics of the firm; and information systems management.

Also, required by Texas law, were courses in U.S. history, the U.S. Constitution, and Texas state history.

Instructors, all of whom became adjunct members of the Texas State Tech faculty, were Dr. Larry Solomon of U.S. International University graduate school of human behavior and center for the study of the person; G. G. "Bud" Rosbrook of Convair Aerospace-SD, University of California Extension, and San Diego State; Dr. Minos Generales of San Diego State; Robert Huntoon of Convair Aerospace-SD and UC Extension; Dr. Tore Tjersland of Western Behavioral Sciences Institute; and Don Pardee of General Dynamics (Corporate staff-SD) and the USIU graduate school of business.

Dave Chigos, a Convair Aerospace-SD education specialist, helped arrange for establishment and coordination of the program and was appointed vice president of Texas State Tech to make local administrative decisions in behalf of the institute.

Col. Herbert Tarson, US Air Force, ret., of San Diego, retired assistant to the chancellor of Long Island University, was registrar and admissions officer. Tarson, Chigos, and Dugger served as the admissions committee.

Croft, chief of educational services for Convair Aerospace - SD said basic courses in the curriculum provided in-depth study of problems and responsibilities of general business management.

"One of the major objectives was to provide a broad understanding of competitive business needs and an appreciation of the range of political, economic, and social factors that influence management decisions," he said.

Some graduates flew from San Diego to Waco in a Convair 440 and after landing at the institute's airfield were greeted by members of the Texas State Tech faculty who served as hosts and guides.

Flight crew members for the Convair 440 were Loren Pilling, Nate Murphy and Jack Rogers, all of Convair Aerospace-SD flight operations.

CONSOLIDATED VETS—Reminiscent of the company's first years in San Diego, from left, Elwood R. Fink, Dept. 250-2; Theos L. Gilchrist, 759-0; Gael A. Dewey, 031-0, and Berne R. Swarts, 149-4, the last to receive 35-year service pins during 1970 from Lyman Josephs, Convair Aerospace-SD general manager. Other 35-year veterans will be recognized during 1971.

Danes Are Last To Phase Out PBY Catalinas

The Danish Air Force retired its last three World War II-era Consolidated (Convair) Catalina PBYs on Nov. 13 with a five-hour flight over all the country's aerodromes and with a number of veteran Catalina pilots on hand for the last touchdowns on the Vaerlose runway.

"Tomorrow will be a sad day for the Air Force," an article translated from the previous day's issue of the Danish newspaper Politiken began. The article said the Danish Air Force was the last military force in the world still flying the Catalina. Several of the rugged flying boats are reportedly still being used in South America — and a few still may be in use in the U.S.

The Politiken article said the Danish Air Force sentenced its remaining Catalinas "to death" six years ago when helicopters were procured for passenger service, rescue work, and transport of provisions in Greenland.

"But the old seaplanes survived and during the last five years they have still been used in places where helicopters failed," the article said.

One of the three retired PBYs is being given to a Danish aircraft museum and museums in England and several other countries have indicated an interest in the other two.

"The Americans who a long time ago got faster and better planes laugh at us when we are flying in our old, clumsy, and slow machines — but they have been of invaluable use," Capt. Keld Willumsen, the Danish Air Force's veteran Catalina pilot, was quoted as saying before the final flight.

BUOY BRIEFING—Dr. Dennis Kirwin, second from left, director of physical oceanography programs for Office of Naval Research, is shown electronic module to be used in second-generation data acquisition and control system for ocean data station 2 Alpha during visit to Lindbergh Field plant last month. Others, from left, are Richard Wert, an ONR computer specialist; Ken Samples, project manager for Convair Aerospace-SD; and Ralph Kosic and Pete Marenholtz, both design specialists.

After 3½ Years Duty at NY, 2 Alpha Is Coming Home

2 Alpha, the prototype large sea buoy developed by Convair Aerospace-SD which the Coast Guard has used the past 3½ years to provide navigation aid for ships entering New York harbor, is coming "home" to the Lindbergh Field plant for modification for new duty with the Office of Naval Research in the North Pacific Study.

Ken Samples, project manager for ONR programs for Convair Aerospace-SD, said 2 Alpha has been acquired by ONR from the Coast Guard for its new role as an ocean data station in the North Pacific.

One of five new Mark II navigational sea buoys being produced by Convair Aerospace-SD for the Coast Guard has taken 2 Alpha's place off Sandy Hook, N. J., at the entrance to New York harbor where the old Scotland lightship earlier had been stationed for 60 years.

Two of the other new buoys were towed to the West Coast last month by Coast Guard cutters to provide navigation aid at the entrances to San Francisco harbor and Humboldt Bay. The 40-foot-diameter steel hulls for the new buoys are being fabricated on the East Coast with Convair Aerospace - SD handling engineering, electronics systems, installation, and test activities.

Samples said plans call for 2 Alpha to be shipped to San Diego by Feb. 1 aboard a Military Sea Transport Service ship after its 39-foot mast has been separated from the hull.

As an ocean data station, 2 Alpha will be outfitted for the first time with oceanographic sensor systems and will be equipped with new second-generation telemetry and command and data acquisition and control systems.

The hull will be modified with installation of two additional 700-gallon fuel tanks and the three-foot-diameter mast will be outfitted with a discone antenna with 28-foot-diameter radials. Meteorological instrumentation can be installed on the mast without use of crane or scaffolding assistance.

Samples said 2 Alpha is to be deployed by the Coast Guard cutter Acushnet next summer where ocean data station Alpha has been stationed since 1969.

Alpha then is to be returned to San Diego for comprehensive cleaning, inspection, repair, preventive maintenance, and calibration and checkout of its electronics systems.

Alpha will be equipped with second - generation narrow - bandwidth oceanographic telemetry systems.

After Alpha is returned to the Pacific some distance from 2 Alpha next fall, near-real-time telemetry data will be received from two ocean data stations in the Pacific for the first time.

The current ONR ocean data systems contract also provides for operation of the Electro Dynamic-SD mobile data center (MDC) at the Scripps Institution of Oceanography pier in La Jolla and for its modification for automatic tuning of new frequencies being provided for Alpha, 2 Alpha, and XERB-1 which has been deployed in the Gulf Stream off the Virginia coast since Feb. 1, 1970.

The MDC is operated seven days a week to support the North Pacific Study, which is managed by Scripps Institution for ONR, and to support the XERB-1 for the Coast Guard.

A teleprinter and computer in the MDC are used in command and control of the buoys on station and in real-time data retrieval, processing, and storage.

West Germans Confer On Helios Missions

Two West German space agency officials visited Convair Aerospace-SD's Kearny Mesa plant last month for discussions on plans for the Helios sun probe missions in 1974 and 1975.

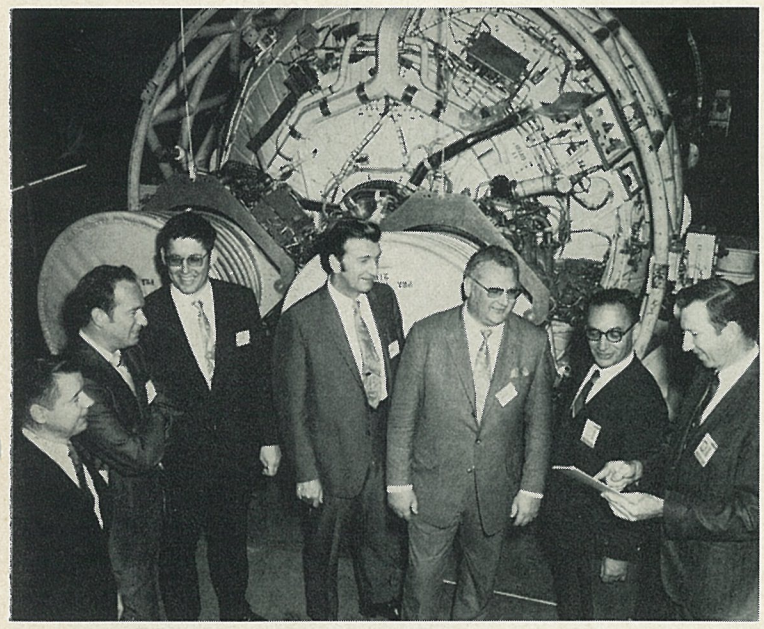
They were Ants Kutzer, Helios project manager, and Dr. Friedrich Unz, Helios spacecraft manager, both representing the West German Federal Ministry for Scientific Research.

Accompanying the two were three representatives from NASA's Goddard Space Flight Center — Gilbert Ousley, Helios project manager for NASA, and Bill Witt and Charles White, both assistant project managers.

Titan boosters with Convair Aerospace-SD Improved Centaur upper-stage launch vehicles are scheduled to send the two Helios satellites into orbits around the sun.

The joint U.S.-West German project is expected to provide new understanding of fundamental solar processes and sun-earth relationships through information obtained on the solar wind, magnetic and electrical fields, cosmic rays, and cosmic dust.

During their visit to San Diego, Kutzer and Unz met with Convair Aerospace-SD launch vehicle programs representatives and with Ron Rovenger, NASA-Lewis resident representative, and toured the Atlas and Centaur final assembly lines.



HELIOS VISITORS—Ants Kutzer, Helios project manager for West Germany, and Dr. Friedrich Unz, Helios spacecraft manager for West Germany, chat with NASA-Goddard and Centaur program personnel during visit to Convair Aerospace-SD plant. From left are Charles White and Gilbert Ousley of NASA-Goddard; Unz; Bill Witt of NASA-Goddard; Kutzer; and Bob Benzwi and Walt Hicks of Convair Aerospace. Centaur vehicle for AC-24 Mariner Mars 71 mission is in background.

People Mobility

Personnel Transfers Within GD

(Following are recent personnel transfers within General Dynamics. In parentheses are dates when individuals joined the company.)

LYLE A. COCKING (1967) from Convair Aerospace-SD to engineer, Electro Dynamic-SD; **ALLEN G. TAYLOR** (1968) from Convair-SD to ED-SD as engineer; **ROBERT J. COFFER** (1963) from Convair-SD to engineer, Electro Dynamic-SD; **RICHARD MASTRANDREA** (1966) from Electric Boat to Quincy Shipbuilding as computer software specialist; **HARRY HUTCHINGS** (1951) from ED-SD to Convair-FW; **JOHN R. DRISCOLL** (1967) from Convair-SD to senior financial analyst, ED-SD; **STEVEN C. PETERS** (1969) from Convair-FW to EB as security agent; **WILLIAM P. STARK JR.** (1963) from Convair-SD to senior financial analyst, ED-SD; **GEORGE T. COLLINS** (1957) from Convair-SD to ED-SD as engineering writer; **GEORGE STRINGFELLOW** (1963) from Convair-SD to principal engineer, ED-SD; **RONALD G. DAMER** (1966) from Convair-SD to senior engineer, ED-SD; **GERALD P. STEPHENS** (1957) from Convair-SD to ED-SD as senior engineer; **DAVID HIGLEY** (1965) from Corporate Headquarters to EB as management systems specialist; **ALAN E. HARRIS** (1958) from Convair-SD to ED-SD as senior engineer; **BARBARA J. SJOBLOM** (1953) from Convair-SD to engineer, ED-SD; **MARY E. ANDERSON** (1968) from ED-Roch. to ED-SD as management systems analyst; **PAUL F. HAWKINS** (1969) from ED-Roch. to management systems analyst, ED-SD; **GARY L. WHALEY** (1955) from ED-Roch. to ED-SD as manager of contracts; **SAMUEL J. FUMIA** (1964) from ED-Roch. to senior systems engineering analyst, ED-SD.

WALTER M. FORYS (1966) from Convair-SD to engineer, ED-SD; **ALLAN A. SIMONIC** (1958) from Convair-SD to engineer, ED-SD; **JOHN W. FROST** (1956) from Convair-SD to senior engineer, ED-SD; **CHARLES J. MANN** (1956) from ED-Roch. to senior engineer, ED-SD; **LOUIS A. GUADA** (1942) from ED-Avenel to Stromberg-Carlson as foreman; **GARY E. GYSEL** (1967) from Convair-SD to ED-SD as engineer; **THOMAS P. GERMAN** (1969) from ED-Roch. to financial analyst, ED-SD; **ROBERT L. LAYBURN** (1955) from Corporate Headquarters to S-C as technical staff engineer; **LOUIS A. TOTH** (1970) from ED-Roch. to ED-SD as program manager; **JACK A. TAYLOR** (1961) from ED-Avenel to S-C as principal engineer; **RICHARD J. SHELQUIST** (1969) from Convair-SD to ED-SD as engineer; **HOWARD J. MANEY** (1958) from ED-Avenel to production control supervisor, S-C; **WILLIAM E. BARBIC** (1966) from Convair-SD to ED-SD as cost estimator; **JOHN B. HARRISON** (1967) from Convair-SD to senior engineer, ED-SD; **HOWARD J. DOSTER** (1960) from ED-Avenel to S-C as senior plant engineer; **GORDON B. HALE** (1953) from Convair-SD to ED-SD as cost estimator; **DAVID N. HAWK Jr.** (1957) from Convair-SD to engineer, ED-SD; **HOWARD J. SQUIRES** (1936) from ED-Avenel to senior production engineer, S-C; **PAUL I. NEUENSWANDER** (1956) from Convair-SD to principal cost estimator, ED-SD; **THOMAS H. SCHNEBLY** (1967) from Convair-SD to engineer, ED-SD; **EDWARD L. PRICE** (1956) from Convair-SD to ED-SD as senior cost estimator; **LUTHER R. SIMPSON** (1958) from Convair-SD to engineering writer, ED-SD; **JOSEPH W. ZESZUT** (1960) from Convair-SD to ED-SD as cost estimator; **ROBERT A. WALLER** (1966) from ED-Roch. to senior contracts administrator; **DENNIS SCANNELL** (1960) from Convair-SD to ED-SD as engineer; **GEORGE R. HOPKINS** (1963) from ED-Roch. to ED-SD as senior engineer.

RAYMOND P. WALIGORSKI (1961) from Convair-SD to design specialist, ED-SD; **SHAUN B. DONNELLY** (1968) from ED-Roch. to ED-SD as senior engineer; **ANTHONY J. BOWKER** (1967) from ED-Roch. to senior engineer, ED-SD; **KARLIS CIKSTE** (1964) from Convair-SD to ED-SD as engineer; **JOHN A. TURNER** (1951) from Convair-SD to ED-SD as design specialist.

Mails Will Be Monitored With Electronic Tracers

Representatives from Electro Dynamic Division's Electronics operation in San Diego will use electronic equipment to trace movement of mail in selected San Francisco and Los Angeles postal facilities for two weeks this month in a study for the San Francisco regional office of the U.S. Postal Service.

Dr. Joseph Ravenis, manager of advanced studies for the research and advanced technology department, and Dr. Sigfried Mikuteit, staff specialist, will use two portable transmitter-receivers to detect passive printed-circuit tracer cards in mail being processed through check points at the Rincon Annex and Air Mail Facility in San Francisco and the Terminal Annex and Worldway Facility in Los Angeles.

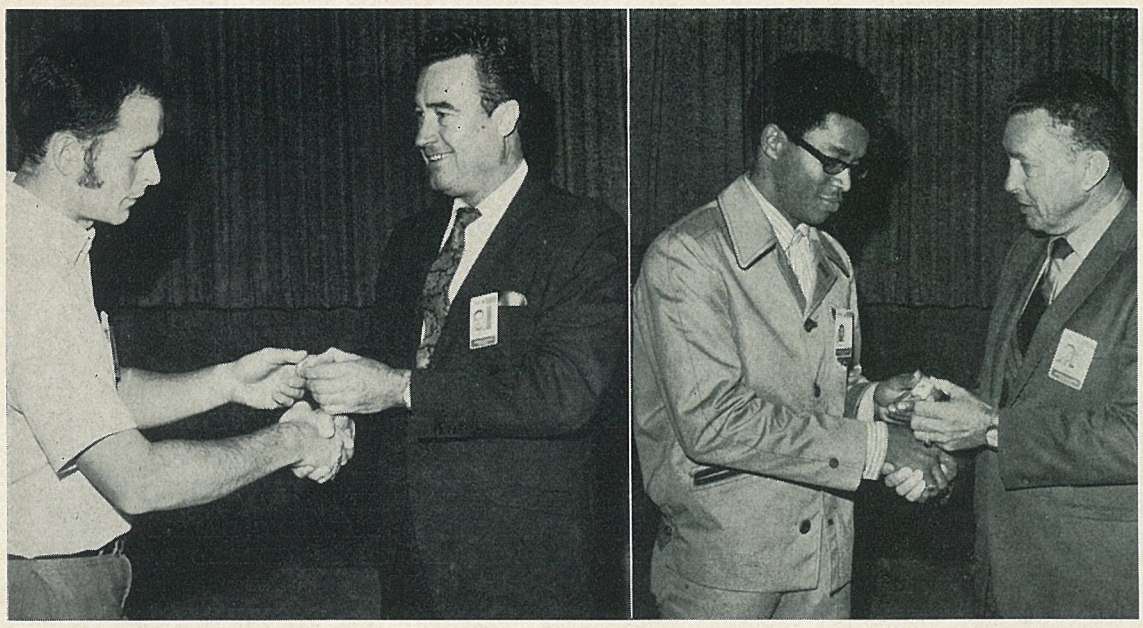
The study is expected to aid postal officials in improving processing and delivery schedules between the two cities by determining the time now required for processing at different points within the facilities.

Ravenis said new tracer circuit cards have been prepared for use in the study, each of which will emit distinctly modulated signals when activated as it passes one of the transmitter-receiver monitoring stations.

A similar system was used to monitor movement of mail in the San Diego main post office and substations in a test early last year.

Ravenis spent three weeks in August in Toronto, Canada, as a consultant for the Ontario Postal Region to evaluate the "paths" different classes of mail follow in facilities there and to determine how mail flow in that area could be monitored electronically.

The Ontario and Quebec Postal Regions late last month were evaluating a proposal for a study by Electro Dynamic - Electronics that would include electronic monitoring of mail movement in several of their facilities.



SUCCESS STORY—After four years schooling and 8,000 hours of on-the-job training in Convair Aerospace-SD apprenticeship program, Amos Todd Jr. and Phillip D. Radabaugh became journeymen. Pictured from left are, Radabaugh and L. I. Medlock, director of reliability control; Todd and J. M. Adamson, director of operations.

Microfilm Course To Begin Tonight

Two General Dynamics men, Jim Martin of Convair Aerospace-SD and Paul Ressler Jr. of Stromberg DatagraphiX, will be among instructors for a 12-week "Microfilm systems" course being offered beginning this evening (Jan. 6) by University of California Extension through cooperation of the San Diego chapter of the National Microfilm Association.

Sessions will be held from 7 to 10 p.m. Wednesdays in Room 113 of Roosevelt Junior High School and the course will provide four units of college credit in business administration. Cost is $60.

The course will include an introduction to microfilm systems and information on costs, uses, storage and retrieval systems, and COM applications.

Long Apprenticeships Climaxed By Journeymen Certificates

Two Convair Aerospace-SD apprentices have received journeyman certificates after recently completing the required 8,000 hours of on-the-job training, plus classroom studies.

Phillip D. Radabaugh and Amos Todd Jr. were awarded the certificates and graduation pins Dec. 10 during ceremonies at the Lindbergh Field plant.

In addition to the journeyman rate, both have completed requirements for an Associate in Science degree from San Diego Evening College after attending classes twice weekly for the past four years.

Radabaugh began his apprenticeship training as a calibration technician in January, 1967 shortly after he joined the company. His new assignment will be with the Electro Dynamic Division calibration lab as a calibration technician.

Last year, Radabaugh received the $300 Case Kellogg Memorial Scholarship as one of the outstanding apprentices in the San Diego area, sponsored by the San Diego General Apprenticeship committee.

He is planning to continue his education at San Diego State College, working towards a BS, leading to an education major and teaching industrial arts.

Todd has been assigned to Dept. 015 as a numerical control profiling machinist. He is currently enrolled at San Diego State working for a BS in industrial arts.

He is presently serving on the California youth advisory committee of the Selective Service system to which he was named by Governor Reagan.

Woodington Honored for Service By National Standards Conference

Andrew J. "Woody" Woodington, head of Convair Aerospace-SD's standards and calibration laboratories since 1955, has been honored by the National Conference of Standards Laboratories with a certificate of appreciation for outstanding service during the past 10 years.

Jerry L. Hayes, president of the conference and head of the Navy Metrology Engineering Center in Pomona, made the award presentation in a surprise ceremony Dec. 10 in the office of L. C. Josephs, Convair Aerospace-SD vice president and general manager, at the Lindbergh Field plant.

The National Conference of Standards Laboratories is sponsored by the National Bureau of Standards and has a membership of about 225 business and industrial firms that operate standards and calibration laboratories.

Woodington, delegate to the conference from Convair Aerospace-SD, served as chairman of the conference from 1963 to 1965 (first chairman ever re-elected) and has been on the board of directors several years.

A citation accompanying the outstanding service award plaque said Woodington "has served the National Conference of Standards Laboratories with sustained distinction since its inception" and said he has "unselfishly performed functions ranging from 'trouble shooter' to chairman in a highly responsive and competent manner."

The document cited Woodington for "illustrious performance in support of the conference's objectives" and said he has been "especially valuable to the 1970 chairman . . . as a source of counsel and meaningful support."

CITED—A. J. Woodington, chief of Convair Aerospace-SD standards and calibration laboratories, second from left, receives outstanding service award from Jerry L. Hayes, president of National Conference of Standards Laboratories. Lyman Josephs, Convair Aerospace-SD vice president and general manager, is at left.

Tasks Transfer Saves AF Money

Recent transfer of refurbishment tasks for three old Atlas F missiles to Vandenberg AFB has enabled Convair Aerospace-SD to reduce Air Force net cost for work under the current -0008 contract by $855,000.

Curt Johnston, deputy program manager for Atlas E and F modification and launch services, said approval of the Air Force Space and Missile Systems Organization and implementation of the Vandenberg Atlas modification program (VAMP) will enable the division to make full use of launch crews between launches with the cost saving being achieved.

Two of the three old missiles, Atlas 31F and 76F, currently are undergoing refurbishment and IRAN (inspect and repair as needed) at Vandenberg. Both had been in storage for several years since being retired from Strategic Air Command operational missile inventory.

Engineering and component manufacturing support still is being provided from the Kearny Mesa plant.

Continuation of the VAMP program through 1972 and 1973, based on current launch frequency projections, is expected to enable the division to update and launch the Atlas E and F missiles in a military research programs at a cost of about $1½ million—a saving of more than a half-million dollars over previous costs.

Johnston said a follow-on contract being negotiated for 1971 launch services at Vandenberg is expected to include provision for modification of four additional Atlas F missiles there.

Assisting with the contract negotiations have been Jud Giesenschlag, program management; Arthur Eldred, estimating; Bob Frye, contracts; and Ernie Millar and Art Sanger, VAFB.

Fifty Visiting Doctors Briefed On Rising Medical Claim Costs

Fifty San Diego area physicians were briefed on Convair Aerospace-SD insurance programs and their increasing costs at a luncheon meeting Dec. 10 — followed by a tour of the machine shop, the DC-10 fuselage and C-5 empennage production lines at the Lindbergh Field plant.

The physicians, who handle a considerable volume of claims for treatment of employes and their families, were welcomed in brief presentations by Roger Brown, acting director of industrial relations, and Dr. G. M. Clarke, medical director, who also described the medical section and its operations.

Paul Allgire, chief of employe benefits, pointed out that, contrary to general opinion, the division and its employes pay the entire cost of medical care claims with Aetna Life and Casualty Insurance Co. being paid a fee for claims administration.

Allgire pointed out that medical care claims payments for the 1970 policy year that ended June 30 totaled $7 million—up from $5 million the previous year — and said payments under the new dental plan instituted last January had totaled $900,000 through October.

"You can understand that we are vitally interested in the cost of health care and the level of charges — particularly since the past year was a bad loss year in respect to premiums set aside and costs incurred," he said.

Allgire asked the physicians' cooperation in maintaining a fair and reasonable level of charges, in completing claim forms accurately and timely, in releasing employes to return to work as early as possible, and in keeping lines of communication open between their offices, the two plant physicians, and the employe benefits offices.

The visiting doctors were briefed on coverages and limitations of the group insurance plans, of improvements being made in them, and of the employe involvement in payment to help curb unnecessary abuses in use.

Allgire also pointed out that employes through their Con-Trib-Club have contributed more than a million dollars to health agencies and hospitals in the San Diego area for equipment and operating expenses since 1952 and gave more than an additional $1.5 million to the Tri-Hospital campaign in the early 1960s.

"We are aware of your dedication and contributions to the health care needs of our employes," he said.

"We want you to be aware that Convair—not an insurance company—pays the bills and that our employes share in the cost of the medical plans.

"We also want you to be aware of Convair's involvement in the economics of the medical community and aware of our employes' involvement, through the Con-Trib-Club, in the hospitals and health agencies of the county."

The group of physicians was the second to be briefed on the division's medical care programs last year. A group of 35 had attended a similar presentation at Dr. Clarke's invitation on Sept. 30.

Zero Defects Award Given to Magnuson

W. E. Magnuson, chief of special projects in reliability control and chairman of the Craftsmanship program control board for Convair Aerospace-SD, was presented a Defense Supply Agency Zero Defects award plaque Dec. 9 in Chicago.

The award was signed by Maj. Gen. R. H. McCutcheon, USAF, deputy director of contract administration services, and was presented by Capt. E. E. Renfro, USN, commander of the Defense Contract Administration Services Region-Chicago, at a Zero Defects seminar on the theme "Pursuit for Perfection" sponsored by the Chicago regional chapter of the American Society for Zero Defects and DCASR-Chicago.

Magnuson had served as luncheon speaker for the seminar, discussing "American Heritage — Pride in Craftsmanship."

The award cited Magnuson for "outstanding contribution to the Department of Defense/industry relationship" through continuous promotion of Zero Defects principles and concepts.

Revised Gas-Pressure System Puts Range Over Savings Goal

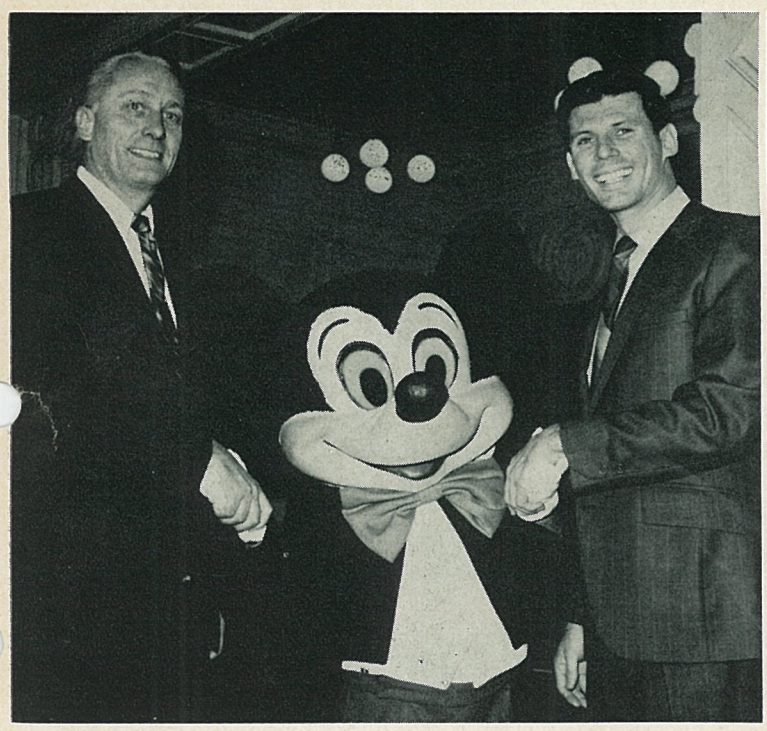
The 1970 Value Control Project savings goal for Convair Aerospace Division personnel at the Eastern Test Range was exceeded with approval of a VCP submitted by D. B. Rodger, senior flight test engineer, that will save an estimated $23,500.

Rodger conducted a value study in an effort to find a less expensive means of bringing the helium system and nitrogen system at launch Complex 36 up to the 6,000-pounds-per-square-inch required for launch operations.

Range contractor support previously had been required to provide mobile pumpers to raise the helium and nitrogen systems to desired level.

As a result of Rodger's VCP, three surplus government-furnished compressors now are being used, along with a compressor already at the complex, to bring the gases to desired level.

LAUNCH SAVINGS—D. B. Rodger, Convair Aerospace-SD senior flight test engineer at Eastern Test Range, receives Value Control Project commendation certificate from Orion Reed, second from left, manager of ETR operations. Rodger's project enabled ETR to exceed VCP savings goal for year. Others, from left, are J. A. Mazza, VCP coordinator; Dan Sarokon, Complex 36 site manager, and J. M. Kechele, site group engineer.



PARTY PLANNING—Earl Bailor, left, Convair Management Association vice president-special events, and Ron Bippert, manager of family events, exchange greetings with a world renowned "mouse" after signing agreement for a five-hour General Dynamics family party at Disneyland on March 27. Tickets for event will go on sale next month.

'Disaster' Handbook Is Offered Free

A 92-page "citizen's handbook" with comprehensive information on family survival in case of disaster—nuclear or natural—is being offered free by the Unified San Diego County Civil Defense and Disaster organization with offices at Gillespie Field, Santee.

In addition to first aid and medical advice useful at any time, the booklet covers a wide range of suggested action in case of earthquakes, fires, floods, and even plans for building home fall-out shelters for protection in nuclear disasters.

Flyers will be distributed later this week via GD/NEWS boxes.

Modified Atlas Arcs Payloads Across Range

(Continued from Page 1)

program is to validate studies on re-entry physics phenomena. Results then may be applied to weapons system developments or spacecraft re-entry technologies.

The first ABRES missions were launched from Complex 11 at the Eastern Test Range in 1963 and 1964 before the program was shifted to Vandenberg to utilize down-range tracking facilities in the Pacific.

Of the 100 Atlases used in BMRS launches, 37 have been new boosters and 63 deactivated intercontinental ballistic missiles. A total of 162 deactivated Atlas missiles became available for low-cost use in new research and development programs following deactivation of the Atlas operational missile fleet.

A variety of payloads, including re-entry vehicles and industry-scientific experiments, have been provided under government contracts for the BMRS programs by Chrysler, AVCO, General Electric, McDonnell, Philco-Ford, and Convair. Nineteen Convair-built OV1 vehicles have been included.

In addition to modification and launch of the Atlas missiles, Convair Aerospace-SD produces a high-impulse retrorocket system (HIRS) for use in selected launches to provide the Atlas with a trajectory different from that of its payloads after they have been released.

C. J. Dunn, Atlas program manager for Convair Aerospace-SD, has had project and program office responsibilities for each of the 100 Atlases launched in the BMRS program.

Launches from the three BMRS pads at Vandenberg AFB are under the direction of Roger Lynch, Convair Aerospace - SD VAFB operations manager; Jim Copeland, chief of launch operations; and Dennis T. Barber, R. I. Smith, and Louis Orosz, test conductors.

Modification of Atlas E and F missiles was shifted to Vandenberg recently to permit full utilization of launch crews between launches and for additional cost saving to the Air Force.

Other Convair Aerospace-SD program office personnel with key responsibiliteis for the BMRS launch vehicles and payload integration include Bert Emerson, Rudy Romero, A. E. Berndes, F. F. Stanford, W. J. Giesenschlag, Bill Donnelly, and Fred Bloschies.

BASKETBALL BANTER—Four youngsters from group of 25 from Woodlawn Park Community Center in Chula Vista who were guests of Convair Management Association for recent San Diego Rockets game with Phoenix Suns exchange small-talk with the Rockets' Elvin Hayes before opening tipoff. Children, from left, are Connie Aguinaga, Thelma Smith, Nathaniel Hines, and Gloria Gillespie. Association frequently provides free tickets for sports events for selected youth from underprivileged areas.

CRA Golf Club Schedule Set Tentatively For '71

First tourney of the new year for CRA Golf Club is scheduled for this weekend (Jan. 9-10) at Singing Hills.

Terry Kell, CRA golf commissioner, said starting times for the tourney can be made by calling the CRA clubhouse, ext. 1111 KM.

Kell also announced a tentative schedule of dates, links, and starting times for other tournaments planned throughout 1971:

Feb. 13-14, Cottonwood, 7 a.m. tee-off.

March 27, Torrey Pines, 7 a.m.

April 10-11, The Meadows, 7 a.m.

May 1-2, Chula Vista Muni, 7 a.m.

June 12-13, Coronado, 6:30 a.m.

July 17-18, 3-club Tecolote, 6:30 a.m.

Aug. 14-15, Rancho Bernardo, 7 a.m.

Sept. 11-12, Bonita, 8 a.m.

Oct. 9-10, Los Penasquitos, 7 a.m.

Nov., Turkey shoot, (as yet unannounced).

Dec. 23, Singing Hills, 8 a.m.

CRA Calendar

(For information on CRA activities call CRA headquarters, ext. 1111 KM. Deadline for next issue of GD/NEWS is Jan. 12. Call ext. 1071 LF or 3322 KM. All meetings are held in CRA Clubhouse unless otherwise noted.)

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BADMINTON — Play 7-10 p.m. Mondays, Federal Bldg., Balboa Park.

BICYCLE CLUB—Call Bob Williams, ext. 1148 LF for information.

BONAIR FLYERS — Meet 7:30 p.m. tomorrow (Jan. 7).

BRIDGE — Duplicate bridge sessions, 7:30 p.m. each Friday.

CAMERA CLUB—Meet 7:30 p.m., Jan. 17, Photo Arts Bldg., Balboa Park.

CERAMICS—Meet 9 a.m. - noon and 7-10 p.m., Tuesdays and Thursdays.

CHORUS—Rehearsals 7:30 p.m. Mondays.

COINEERS—Meet 7:30 p.m., Jan. 11.

DELTA DIVERS—Meet 7:30 p.m., Jan. 13.

FENCING—Workouts and instruction 7:30 p.m. Fridays. YWCA, 10th & C Sts.

FISHING CLUB—Potluck 6:30 p.m., meeting 7:30, Jan. 19.

GARDEN CLUB—Meeting 7:30 p.m., tonight (Jan. 6), Floral Association Bldg., Balboa Park.

GOLF—Singing Hills tourney, Jan. 9-10, 8 a.m. tee-off.

HEALTH CLUB—Open 9:30 a.m. - 10 p.m., Monday through Thursday; 9:30 a.m. - 9 p.m., Fridays; 9 a.m. - noon, Saturdays; "women only" weekdays, 9:30-11 a.m.

HI-FI MUSIC—Meet 7:30 p.m., Jan. 12.

ICE SKATING—GD family skate night 6:15-7:45 p.m. each Thursday, House of Ice, Interstate 8 and Lake Murray Blvd. Flat rate fee $1 (includes skates).

MINIATURE RAILROAD—Work sessions Saturdays and Sundays, CRA Missile Park.

MODEL HO RAILROAD — Work sessions 7 p.m., each Tuesday, CRA Missile Park.

PISTOL CLUB—Shoot 9:15 a.m., Jan. 10, S.D. Police Pistol Range, Federal Blvd. & Home Ave.

RADIO CLUB — Meeting 7:30 p.m., Jan. 7.

RETIREES—Luncheon 11 a.m.-2 p.m., Jan. 12.

RIDING CLUB — Meeting 7:30 p.m., Jan. 13.

RIFLE CLUB—Senior shoot 7 p.m., Jan. 13. Junior shoot 9 a.m., Jan. 17. Gillespie Field Range.

ROCKHOUNDS — Meeting 7:30 p.m., Jan. 13.

SPORTS CAR CLUB — Meeting 7:30 p.m., Jan. 13.

SQUARE DANCE — Dance 8-10 p.m. each Thursday.

STAMP CLUB — Meeting 7:30 p.m., Jan. 14.

TOASTMASTERS — Convair Toastmasters meet 4:30 p.m. each Wednesday. Dynamic Toastmasters meet 5:30 p.m. Thursdays.

Division Plans New Badges

New Electro Dynamic Division badges are being issued this week to employes at the Electronics operation in San Diego, Bernie Kulchin, director of industrial relations, announced.

The Pomona operation will also utilize the new Electro Dynamic Division badges so that employes at the two locations will have the same identification.

A vertical colored stripe on the front of the new badge, adjacent to the employe's photo, will indicate the level of security clearance. Salaried personnel at San Diego will have a solid blue stripe insert denoting salary payroll.

First shift hourly personnel will have a yellow stripe, second shifters will wear green and white will designate third shift people. All employes are reminded that badges must be worn above the waist and on the left side.

Electronics operation personnel in San Diego who do not receive a new badge by Monday, Jan. 11, should contact industrial relations.

High School Classes Planned In-Plant

Convair Aerospace - SD educational services, for the first time, will offer in-plant courses in conjunction with Midway Adult High School leading to a high school diploma.

Courses planned for the first semester include U.S. History on Monday evenings and U.S. Government on Wednesdays.

Wayne Turner of educational services, explained the new curriculum will be expanded to fit the needs of enrolled employes. Although initially aimed toward those on first shift, a similar series will be considered for second shifters if enough interest is exhibited.

Counseling services to determine required courses for graduation and equivalency tests will be available to all participants.

Classes will start the week of Jan. 18 at the Lindbergh Field plant. Hedwig Ann St. John will instruct the 4-7 p.m. sessions.

Students must register through educational services, ext. 2564 LF, before the first class meeting.

FIRE EXTINGUISHERS ON SALE AT BARGAIN

D. D. Dimmitt, chief of safety and fire at Convair Aerospace-SD, reports that the safety office has Super-Kem, dry chemical fire extinguishers, for sale at dealers cost, passing the savings on to General Dynamics employes.

The 2½ lb., 14 inch extinguishers, ideally sized for kitchen, garage, trailer, camper, and boat are available at safety cribs at Lindbergh Field, Kearny Mesa, and AF Plant 19 for $8.50, a $12 savings.

Dimmitt described the extinguisher to be of "highest quality available as potential fire fighters that may be used in any class of fire — grease, paper, liquid, etc."

Prior to purchase, Dimmitt suggests that employes receive practical demonstration on proper use from Convair Aerospace fire stations. Fire captains on duty will also have instruction sheets available.

Dimmitt noted that 95% of serious home fires last year could have been prevented if residents were properly informed on fire extinguishing procedures and proper equipment had been available.

Peterson Gets Award For Best ASME Paper

Don Peterson, a senior design engineer in Convair Aerospace-SD's Dept. 533-1, has received a $125 cash award for best paper of an applied nature at the American Society of Mechanical Engineers' mechanisms conference in November in Columbus, Ohio.

The award was for his paper on "Design of four-bar linkages using interactive computer graphics and synthesis curves."

Bargain Tickets Offered by CRA

The following tickets are available at all CRA and employe benefits outlets:

"Holiday on Ice" 6 p.m. performance Jan. 24 at San Diego Sports Arena. Regular $3, $4 and $5 tickets at $1 discount for adults and half price for children under 17.

"Song of Norway" $3 tickets available for $2.40 for the 4:45 p.m. showing Jan. 24 at the Capri Theatre.

Cyclists Will Pedal To Rancho Santa Fe

A 25-mile "Rancho Santa Fe Round-up" has been scheduled by the CRA Bicycle Club members Jan. 9. Bike riders will meet Dick Gilbert, ride leader, at the Carmel Valley turnoff on Interstate 5 at 9 a.m.

On Jan. 23, cyclists will pedal the 50-mile San Pasqual Valley loop. Walt Shaw will be in charge of the group leaving from U.S. 395 and Miramar Road at 7:30 a.m.

Schneider, Kropp Lead Pistol Match

Red Schneider and Charlie Kropp fired 289 and 287, respectively, to take master class honors in the CRA Pistol Club's biweekly match Dec. 13 on the police range.

Winning scores in expert class were turned in by Dick Sutton and Leon Thomas and in the sharpshooter bracket by Ferdy Carranza and Jim Thomas.

Retirees Schedule Luncheon at CRA

Retirees who have formed an informal "General Dynamics Alumni Association" will meet for a catered luncheon from 11 a.m. to 2 p.m. Tuesday (Jan. 12) in the CRA Clubhouse.

Forty-five retirees attended the group's last luncheon Dec. 8 in the Nordic restaurant and reported having "a lot of fun just reminiscing."

Radio Club Again Will Show 'Wake of Bounty'

CRA Radio Club will again show "The Wake of the Bounty" during a 7:30 p.m. meeting tomorrow (Jan. 7) in the CRA Clubhouse.

Originally viewed by club members last September, the movie is plotted around Fletcher Christian, leader of the mutiny of the HMS Bounty.

During the first showing, club members communicated with Tom Christian on Pitcairn Island, who supposedly is the great, great, great great grandson of the famous mutineer.

New Ground School Class Will Convene

CRA Bonair Flyers Club will hold another private pilot ground school course covering all facets of the FAA private pilot written examination.

Open to all employes, the course is scheduled to begin the first week of February with registration deadline Jan. 18. For information and registration forms, contact George Hazelrigg, ext. 2441 KM or D. K. Smith, ext. 1223 LF.

'Greyhound' Trip Set By Mgt. Association

Tickets are on sale through Convair Management Association boosters for a night at the greyhound races at Caliente Sunday, Feb. 13.

Cost or $3.75 will cover bus transportation from the border at 6:45 p.m. if desired, admission to the clubhouse, corsages for the ladies, Margarita cocktails at 7 p.m., and carne asada (broiled sirloin) dinner at 7:30 p.m.

Rinker to Present Slide Show Jan. 17

Kenny Rinker will present a special slide show at the CRA Camera Club 7:30 p.m., Jan. 17 meeting in the Photo Arts Bldg., Balboa Park.

Employes interested in Camera Club activities are invited to attend. For club information contact Erich Wolf, ext. 2507 LF.

SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

Vol. 24, No. 2 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, January 20, 1971

FIRST FOR UNITED—Third McDonnell Douglas DC-10 and first for United Air Lines lifts off on maiden flight from Long Beach Municipal Airport. Convair Aerospace-SD builds 20-foot-wide fuselage for the big tri-jetliner. Seventeen airlines in the U.S., Europe, Africa, and New Zealand have placed orders for the DC-10.

High Goals Established For Convair Aerospace

Convair Aerospace-SD objectives for 1971 were outlined by Lyman Josephs, vice president and general manager at meetings for supervisors Jan. 7. They are:

QUALITY

Meet all launch and flight performance commitments for Atlas and Centaur.

Achieve 100 per cent success in acceptance of Atlas, Centaur, DC-10, F-111, and C-5 hardware.

Lower division defects per thousand manhours rate to 39 (with a new method for counting and reporting defects being implemented).

Win a third straight Air Force Sustained Performance Craftsmanship award.

Execute "Performance Plus," a program to improve the division image through attention to appearance, discipline, and orderliness.

MANAGEMENT

Meet all delivery schedules for DC-10, F-111, Atlas, Centaur, and C-5.

Reduce DC-10-10 cost below unit budget by ship 35 (September) and beyond.

Deliver first DC-10-20 and -30 versions on schedule.

Bring all DC-10 contract change open items to current status.

Reduce accident frequency rate 15 per cent under the 1970 rate.

Meet all goals of the 1971 Affirmative Action program.

ECONOMICS

Exceed budgeted profit and return on investment.

NEW BUSINESS

Capture two new missions each for Atlas and Centaur.

Complete space shuttle Phase B study and win the Phase C/D booster contract.

Win key programs that extend service life of the F-102 and F-106.

Win research and applications module (RAM) Phase B contract.

Capture an increasing number of technology contracts to support aircraft and space programs.

★ ★ ★

In reviewing performance toward last year's objectives, Josephs read part of a letter from Lt. Gen. J. W. O'Neill, vice commander of the Air Force Systems Command, announcing that Convair Aerospace-SD has met all requirements for its second Sustained Craftsmanship Performance award.

"This award is in recognition of sustained superior performance through individual craftsmanship reflecting outstanding achievements, increased efficiency, and economy," O'Neill wrote. "Please extend my personal congratulations to all of your participating employes."

Josephs noted that DC-10 production was behind schedule at the start of 1970, achieved schedule by August, and now is ahead to facilitate tool changes for the -20 and -30 versions. Some cost problems remain on both the DC-10 and Atlas-Centaur fabrication programs.

(Continued on Page 2)

Team Formed For Bidding on New Missile

General Dynamics has announced its team that will bid on the U.S. Navy's Harpoon antiship missile program includes Boeing's aerospace group and the Honeywell Marine System Center.

Pomona operation of Electro Dynamic Division will serve as the weapon system prime contractor and will be responsible for missile guidance. The division's San Diego operation will participate in development of the missile seeker.

J. M. Guthrie is Harpoon program director for Pomona operation of Electro Dynamic Division.

Boeing will be responsible for the missile propulsion system (including the booster system for shipboard launch), aircraft integration, and the air-launched missile test program.

Honeywell will provide shipboard integration of the system with ASROC (anti-submarine rocket) ships of the destroyer leader 1052, 1040 and 1078 classes. Honeywell also will be responsible for the design and development of Harpoon's weapon control equipment, and new equipment required to achieve interface with existing equipment, and modification of existing equipment.

"We are offering the Navy an outstanding team of combined talents that will provide successful development of this critically

(Continued on Page 2)

Careful Check of Parts Advised on 20/30 Series

"It's different . . . but only sometimes . . . check it out!"

DC-10 production area personnel are being reminded through visual aids that the new DC-10 20/30 series airplanes are now in the assembly stage.

According to R. R. Hoover, assistant program manager, subassembly on the first 20/30 series models began Dec. 23 at Convair Aerospace - SD Lindbergh Field plant. Full production is expected late this month.

To assist production, identification signs denoting 20/30 series or 10 series are being placed on all fixtures in the DC-10 production area.

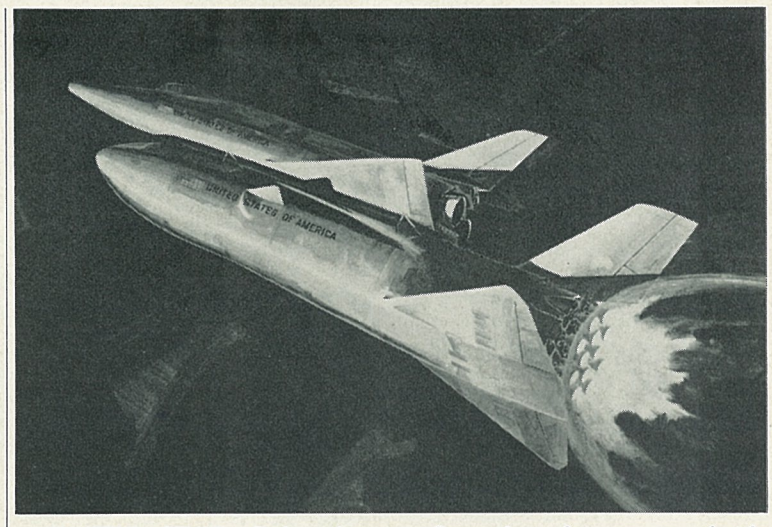
Additionally, all shop orders and installation planning have been overprinted by rubber stamping with the appropriate designation.

Hoover explained the new heavier 20/30 version parts are similar in design and frequently have only minor variation in part number. Adding to the complexity, a great number of parts are interchangeable with the 10 series. The new signs will act as a visual reminder to employes to double check their work against planning to avoid possible errors.

The 20/30 extended-range model will be used for intercontinental operation. Although having a higher gross weight the fuselage dimensions are identical to the 10 series. The 20/30 series will carry more fuel with higher thrust fan engines. This will approximately double the 10 series range capability.

Production of the 20/30 series will be intermittent with the 10 series with a one for one ratio expected by 1974.

IT'S DIFFERENT—Roy Endicott and Frank Longworth, Dept. 027 assemblers, are shown with item for new 20/30 series DC-10 airplane. New identification signs denoting 20/30 or 10 series airplanes are located on all DC-10 production parts and fixtures.



SHUTTLE STYLE—Delta-wing configuration for space shuttle booster has been adopted by Convair Aerospace-SD team following completion of trade-off and design definition studies. Program officials said studies show delta-wing design will provide better re-entry control with minimum development risks. The delta-wing booster is shown with the high-cross-range orbiter, which also utilizes a delta wing.

Mid-Term Shuttle Report Presented

Mid-term reports to Convair Aerospace - SD's Phase B space shuttle booster studies were being presented to NASA personnel last week at meetings in Houston, Huntsville, and Cape Kennedy.

Dr. Donald Dooley, vice president and space shuttle program manager, also was scheduled to brief Dale D. Myers, NASA associate administrator for manned space flight, in Washington on results of the six months of study activity.

Convair Aerospace-SD is teamed with North American Rockwell's Space Division in Downey in the year-long Phase B study with NR serving as team leader and handling orbiter vehicle definition and Convair Aerospace providing booster vehicle and ground operations definition and preliminary design.

A delta-wing configuration has been selected for the shuttle booster following completion of trade-off and shuttle definition studies in the first six months of the Phase B effort by Convair Aerospace personnel.

A variety of booster "candidates," including several different straight-wing and delta-wing configurations, were included in the evaluation.

"The delta-wing was selected because of its good flying qualities in hypersonic, supersonic, and subsonic flight regimes," said Davey Jones, director of program development.

"It will be comparable in weight with a straight-wing configuration, also will provide good cruise-back and landing performance, and will provide minimal developmental risk," he said.

Convair Aerospace-SD has developed and produced many delta-wing aircraft, including the B-58, F-102, and F-106, and has more delta-wing developmental experience than any other aircraft firm.

"This experience will be utilized to detail the design of the booster during the remainder of the Phase B study and will help us secure the follow-up Phase C/D detailed design and vehicle fabrication and testing contract," Jones said.

The booster configuration selected also has forward canard control surfaces to aid in re-entry and cruise-back control. A reusable metallic thermal protection system will be used to protect the basic booster structure from high re-entry heating.

Last week's mid - term report sessions with NASA were expected to determine whether contractual emphasis will be on a high or low-cross-range orbiter vehicle and what main propellant thrust levels will be for both the booster and orbiter.

Studies under the Phase B contract during the next six months will include detailed preliminary design of the shuttle vehicles and development of Phase C/D program plans.

If the program proceeds under current NASA schedules, space shuttle vehicles should be flying routine missions into orbit about 1977. Use of the shuttle is expected to reduce the cost of placing space payloads in low-earth-orbit from about $1,000 to $100 per pound.

In operation, the booster will be launched vertically and will carry the orbiter into space in piggy-back fashion. After about

(Continued on Page 2)

★ ★ ★

Shuttle Field Offices Created

Convair Aerospace-SD has established space shuttle program field offices at NASA's Marshall Space Flight Center in Alabama, Kennedy Space Center in Florida, and Michoud Assembly Facility in Louisiana. Additional key personnel from both San Diego and Fort Worth have been assigned to the shuttle program staff.

Dr. Donald A. Dooley, vice president and space shuttle program manager, said the new organizational structure will provide increased personal contact and liaison with NASA shuttle program personnel and will aid in the preparation of a definitive Phase C/D proposal later this year while the current Phase B study is being completed.

Dooley said the total resources of Convair Aerospace Division were considered in structuring the revised organization. Some functions also have been elevated to reflect a transition from concept definition to preliminary system definition emphasis.

R. N. Austin has been appointed assistant program director for Forth Worth operation support and will assist with assignment and coordination of space shuttle tasks.

F. J. Dore is in charge of the Marshall shuttle office, B. J. Wier of the Kennedy office, and A. J. Von der Wische of the

(Continued on Page 2)

High Goals Established for Convair Aerospace in 1971

(Continued from Page 1)

The general manager pointed out that the operation has won important structural integrity and "six shooter" programs for the F-106.

He said aircraft system design capabilities and combined efforts of the entire Convair Aerospace division will be used on the space shuttle Phase C/D program and that a "very powerful team" also has been assembled for the RAM Phase B study. He commended Improved Centaur personnel for working around problems created by delay in delivery of a computer.

Josephs noted that the San Diego operation won 45 per cent of the new technology contracts and 47 per cent of the dollars for such contracts on which it bid during the year. "In all my experience, I have never seen capture rates as high as this," he commented.

The San Diego operation increased participation in cost reduction programs by 14 per cent during the year, with 6,234 Employe Suggestions being received —more than ever before in one year.

★ ★ ★

W. F. Chana, directing Convair Aerospace-SD's new "Performance Plus" program, discussed plans.

Immediate objectives include improvement in appearance, orderliness, and discipline by the end of this month; a measured continuing improvement through the year; and a measured improvement in productivity in 1971.

"Performance Plus" means we must be more people conscious, appearance conscious, safety conscious, schedule conscious, cost conscious, material conscious, and quality conscious," Chana said. "We must have performance . . . plus."

Program representatives are to be appointed for areas in each of the Convair Aerospace-SD plants and inspections are scheduled to aid in identifying problem areas and implementation of corrective action.

"Appearance, orderliness, and discipline must become a way of life," Chana said. "Everyone in the division must become a 'pick it up artist'."

W-2 Forms Mailed To Home Addresses

W-2 forms have been mailed to Convair Aerospace-SD employes at their home addresses for use in preparing federal income tax returns for 1970.

Any employe who has not received his W-2 forms has been asked to phone the payroll department, ext. 1785 KM.

Bargain Offered For Golf Tickets

Tickets for the Andy Williams' San Diego Open golf tournament, Jan. 26-31, are on sale at all employe benefits and CRA outlets.

Prices are $2.75 for one $3.40 weekday admission; $4 for one $5 weekend admission, and $15 for one $24 season ticket.

Shuttle Field Offices Created

(Continued from Page 1)

Michoud office.

The staff at the Marshall center includes Dan R. MacGregor and Hayden Mitchell from San Diego and Fred Hopton-Jones and Bill Cantrell from Fort Worth.

Now reporting to Dooley and Ivan Ratinger, deputy program manager, are D. J. Jones, program development; R. N. Babcock, procurement planning; H. S. Wurtz, contracts; F. R. Lee, quality and reliability assurance; H. S. Nulton, safety; H. F. Rogers, engineering; D. L. Fagan, test and operations; R. W. Keehn, manufacturing and facilities; A. B. Cox, program plans and resources; Wier; Dore; and Austin.

Von der Wische reports to Keehn. R. E. Soper is assistant for test and operations.

Reporting to Rogers are A. L. Schuler, propulsion; C. E. Grunsky, avionics; L. E. Lightbown, vehicle design and structures; D. R. Kent, system technologies; L. E. Munson, system integration; and R. A. Nau, shuttle technology and special studies.

Functions under Fagan's test and operations section include test planning and implementation under T. L. Maloy (acting); logistics and maintainability under P. M. Dyer; training under D. R. Maxion; flight crew interface under L. B. White; and operations engineering under C. A. Johnson.

Program plans and resources under Cox includes North American Rockwell interface, H. M. Bonesteel; program requirements and scheduling, J. R. Bain (acting); program plans, R. P. White; economic analysis, Mort Kantor; and resource control, J. L. Reynolds.

Team Formed For Bidding on New Missile

(Continued from Page 1)

needed missile program," said W. J. Morrow, vice president and general manager of the Pomona operation. "With this team we stand ready to meet the Navy's requirement."

General Dynamics currently is producing the Navy's Standard Missile for fleet defense against both air and surface threats. It also produces air-launched Standard Arm missile.

Boeing has committed a strong technical and management team to assist General Dynamics in competing for the Harpoon program, O. C. Boileau, Boeing's Aerospace Group vice president and general manager, said. "The Harpoon program represents a major business opportunity for the Boeing Company in 1971," he said. "Our part of the team will draw heavily on related turbojet experience from the commercial airplane group and missile-aircraft integration, and air-launched missile test experience from the SRAM program."

CONSCIENTIOUS ATTENDERS—Exceptional Dept. 027 employes were honored for special attendance during 1970 in ceremonies at AF Plant 19. Never late, absent, or early out they received letters of commendation from Harry Rote, F-111 assembly superintendent and praise from their supervisors.

Seventeen Assemblers Commended On Perfect Attendance Records

Seventeen Convair Aerospace-SD Division Dept. 027 assemblers were honored for outstanding attendance records during 1970 in special ceremonies Jan. 11 at AF Plant 19.

Harry G. Rote, F-111 assembly superintendent, presented letters of commendation and lauded the men for never being absent, late or early out during the past year.

Honored were R. J. Altmore, J. Arena, A. A. Baker, C. W. Brink, M. H. Button, A. I. Cox, J. W. Dally, J. T. Fenwick, R. P. Gosney, H. R. Heinecke, C. D. Herrera, E. J. Jaeschke, J. Korchick, A. R. Mayes, L. Nowak, J. J. Oren, and M. F. Yager.

The program to emphasize regular attendance began early last year to overcome absenteeism, a major problem in industry.

A bulletin board "honor roll" was established to further recognize those with perfect attendance and three of the initial eight are repeat members. Honor roll membership in 1970 increased 100 per cent over 1969 experience.

Mayes, Dally and Button were honored for two-year perfect attendance. Korchick's unblemished 1969 record in Dept. 031 was also commended.

"Good attendance is of vital importance and recognition of individual employees essential," Rote said. He singled out Dally who will retire Jan. 29 at age 65 and still maintains an excellent attendance record.

Paul Veal and Mike Clark of industrial relations were present for the ceremony and added their thanks and congratulations.

MID-TERM SHUTTLE REPORTS PRESENTED

(Continued from Page 1)

three minutes of booster-powered flight, the vehicles will separate and the orbiter will continue into orbit under its own power.

The booster will re-enter the atmosphere and use airline-type turbofan engines to cruise back for landing. The orbiter will return later and land in similar fashion.

Weight of the combined vehicles at liftoff is expected to be about 4.88 million pounds.

The booster is expected to be 250 feet long, have a 142-foot wingspan, and weigh about 3,600,000 pounds at liftoff and 577,000 pounds at landing.

Both booster and orbiter will have two-man crews although the booster could operate unmanned. About 25 to 75 launches per year are expected with only minimal ground maintenance being required for the vehicles between missions.

Assisting Convair Aerospace-SD in the Phase B booster study are IBM for integrated electronic data systems, Honeywell for stabilization and control and guidance and navigation, and American Airlines for maintenance and ground handling.

British Aircraft Corp. and Messerschmitt Bolkow Blohm of West Germany are expected to assist with the Phase C/D proposal and work. David Farrar, director of the Concorde SST program for BAC, will be at the Kearny Mesa plant Friday (Jan. 22) for discussions. Representatives from Messerschmitt will be visiting the plant for similar discussions next Tuesday (Jan. 26).

'Hog' and 'Hare' Awards Made

G. W. Zahrte, manager of procurement (Dept. 810) for Convair Aerospace-SD, recently awarded special "Hog" and "Hare" awards for the third consecutive year to employes who contributed most to the departmental cost reduction program during 1970.

Tom P. Mellen received a "Hog" trophy for the greatest aggregate of cost reduction savings for the year—$291,700. Wendell Hesseltine got the "Hare" trophy for highest number of cost reduction projects—201.

Barney M. Hall was second in both categories with 180 projects and $225,500 in savings and was presented a special runner-up "Hog" trophy.

Each of the three award recipients work for C. T. Talbott, purchasing agent, as buyers in Dept. 810-0.

Zahrte said the awards provide a little humor and "a lot of interest in the departmental cost reduction program during the year."

MATERIAL HONORS—T. P. Mellen, second from left, Wendell Hesseltine, center, and B. M. Hall display "Hog" and "Hare" award trophies received for outstanding cost reduction efforts as C. T. Talbott, left, Convair Aerospace-SD purchasing agent, and G. W. Zahrte, right, manager of procurement, look on.

Log Book Entries

Awards
CONVAIR

Employe Suggestion awards approved for week ending Dec. 23:

J. F. Batchelder, Dept. 046-0, $39.50; H. A. Benner, 143-4, $15; K. E. Bennett, 019-0, $54.90; A. A. Bernard, 224-2, $93.30; S. Cannizzaro, 453-0, $15; R. L. Cowan, 002-0, $23.60; R. E. Dykes, 001-0, $92; M. E. Gallagher, 149-0, $93.70; R. Gimboa, 002-0, $29.95; R. E. Hibbs, 143-1, $20.80; E. H. Hussong, 001-0, $15; R. J. King, 027-0, $15.90; E. M. Myers, 149-5, $29.95; S. L. Myers, 744-0, $15; G. Olcott, 059-4, $46.65; R. Richards, 046-0, $35.40; K. K. Rose, 130-6, $46.65; G. R. Simpson, 027-0, $15; D. L. Spencer, 130-1, $15; G. L. Woods, 001-0, $15; J. Zoll, 144-1, $15.

Employe Suggestion awards approved for week ending Dec. 30:

L. S. Addie, Dept. 019-0, $15; G. H. Berg, 985-5, $15; J. J. Campbell, 744-0, $32.30; C. F. Crowell, 149-5, $19.30; R. H. Crowie, 046-0, $16.40; R. L. Freeman, 754-0, $15; R. E. Hibbs, 143-1, $15; D. D. Klinger, 453-0, $15; W. J. Krausie, 027-0, $16.05; S. M. Martinez, 401-9, $15; W. McColley, 198-0, $15; C. W. Owen, 148-4, $240.20; D. E. Pendergast, 027-0, $15; D. O. Turner, 059-2, $123.70; J. Vitalis, 407-0, $15; J. E. Williams, 015-0, $25.70; L. H. Wilson, 027-0, $15.60; J. L. Ziemer, 027-0, $16.05.

Employe Suggestion awards approved for week ending Jan. 8:

D. K. Bauers, Dept. 019-0, $15; W. W. Berger, 149-1, $43.30; R. M. Braeutigam, 027-0, $15; E. R. Burgess, 407-0, $15; J. Cesena, 046-0, $46.70; N. Chaudoin, 733-0, $127; E. C. Cotnam, 407-0, $15; L. K. Denaco, 507-0, $15; R. L. Freeman, 754-0, $15; P. M. Hannay, 562-0, $15; G. A. Hasti, $759-0, $18.60; R. P. Herrmann, 519-0, $15; D. C. Herstedt, 001-0, $15; L. E. Homer, 020-0, $15; I. D. Howarter, 045-0, $197; K. K. Jones, 001-0, $15; W. J. Krausie, 027-0, $15; G. R. McCambridge, 001-0, $7.50; G. W. McGeath, 193-3, $36.50; W. L. Melichar, 401-5, $15; I. P. Mouet, 046-0, $66.10; C. C. Rakestraw, 228-1, $15; G. R. Simpson, 027-0, $15.60; M. Sturman, 401-4, $23.30; M. H. Thrasher, 001-0, $7.50; M. E. Walls, 046-0, $15; M. L. Wilson, 015-0, $15.

Rider-Driver
CONVAIR

RIDE WANTED — From Kensington area to Lindbergh Field Plant, 7 a.m. to 3:45 p.m. shift. Call Kay, ext. 1194 LF.

RIDE WANTED — From Chula Vista (near Hilltop and L St.) to Lindbergh Field plant, 7 a.m. to 3:30 p.m. shift. Phone John Oakley, ext. 1411 LF, or (home) 422-1366.

General Dynamics News

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Convair Division editorial offices: Kearny Mesa plant, Bldg. 8, Mail Zone 104-61, P.O. Box 1128, San Diego, Calif. 92112. Phone 277-8900, ext. 3322.

Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P. O. Box 1950, San Diego 92112.

Personals
CONVAIR

Your kindness and sympathy following the death of Pearl Lee are more deeply appreciated than any words of thanks can ever express.

Michael Lee

* * *

My sincere thanks and appreciation to all my friends at Convair for their generosity and good wishes during my current illness.

Mariana Costantino, Dept. 015

* * *

My wife and I wish to thank all my friends at Convair for their donations and sympathy during the loss of our two children, Rose Marie Joy Hopgood and Roger Starr Hopgood Jr.

R. S. Hopgood Sr. Dept. 761-0

Retirements
CONVAIR

BARNARD — Cecil M., Dept. 001-0. Seniority date April 6, 1966, retired Dec. 30.

CUNNION — Anna T., Dept. 016-0. Seniority date May 21, 1947, retired Dec. 30.

DOORE — Lawrence A., Dept. 515-0. Seniority date Oct. 23, 1946, retired Dec. 4.

ECHEANDIA—Juan F., Dept. 756-0. Seniority date Dec. 20, 1956, retired Dec. 30.

ENNIS—Arthur N. Dept. 130-3. Seniority date May 15, 1940, retired Dec. 30.

FISHER — Theodore H., Dept. 031-0. Seniority date April 16, 1953, retired Dec. 30.

FOWLER — Wilma B., Dept. 193-3. Seniority date Aug. 3, 1951, retired Dec. 30.

GEORGE—John A., Dept. 572-3. Seniority date June 19, 1951, retired Dec. 18.

GLASSER — Evelyn N., Dept. 149-7. Seniority date Aug. 10, 1950, retired Dec. 5.

GNAS—Joseph, Dept. 195-9. Seniority date Dec. 13, 1955, retired Dec. 11.

GRANDO—John P., Dept. 143-1. Seniority date Aug. 20, 1953, retired Dec. 30.

KEMPER — William R., Dept. 222-1. Seniority date Sept. 9, 1947, retired Dec. 11.

LIGHT—Fred J., Dept. 226-1. Seniority date Jan. 4, 1951, retired Dec. 30.

McCOURT—Paul E., Dept. 566-2. Seniority date Nov. 11, 1957, retired Dec. 9.

NEWMAN — Edward P., Dept. 454-3. Seniority date May 19, 1954, retired Dec. 18.

PETERS—Ross, Dept. 195-4. Seniority date May 16, 1957, retired Dec. 7.

POHLEMANN—Arthur E., Dept. 250-2. Seniority date Nov. 26, 1956, retired Dec. 11.

SCOTT—Helen O., Dept. 518-0. Seniority date Nov. 30, retired Nov. 30.

Deaths
CONVAIR

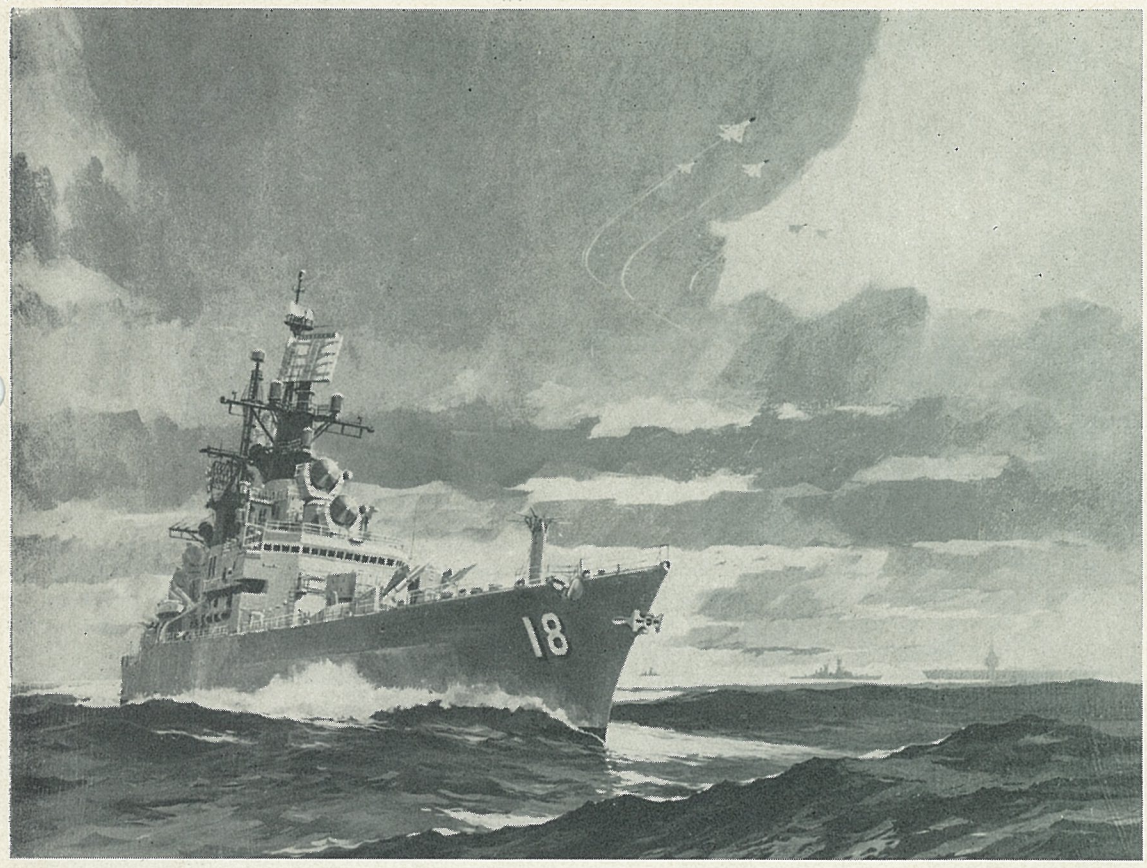
DUERSON—William T., Dept. 170-8, died Dec. 25; survivors include his wife, Jeffrine.

McGRIFF—L. O., Dept. 101-4, died Jan. 2; survivors include his wife, Rita; two daughters, Rita Hannon and JoAnne Zamudio; and four grandchildren.

McNULTY—Thomas F., Dept. 979-4, died Dec. 12; survivors include his wife, Doris.

LEE—Pearl H., Dept. 101-6, died Dec. 26; survivors include her husband, Michael, and two sons, Warren and Alan.

You can buy U. S. Savings Bonds regularly for as little as 50 cents a week.



REJOINS FLEET—USS Worden (DLG-18) is seventh in series of Terrier ships to undergo fleet modernization. Recommissioning was scheduled Saturday, Jan. 16. Artist's drawing is by Ed Ramstead of Pomona operation.

Terrier Frigate Rejoins Fleet, Begins Phase III

USS Worden (DLG-18), a guided missile frigate, was recommissioned into the U.S. Navy at Bath Iron Works, Bath, Maine, last Saturday, Jan. 16, and commenced Phase III of its modernization program.

James G. Woodruff, special assistant to the Secretary of the Navy, was the principal speaker. Capt. William F. Clifford, USN, assumed command of the ship.

The Worden is named in honor of RAdm. John L. Worden, USN, and is the fourth ship of the fleet to be so named. Admiral Worden served as the first commanding officer of the ironclad Monitor and brought her into battle during the historic clash in Hampton Roads during the Civil War. He later served as superintendent of the U.S. Naval Academy from 1869-1874.

The fourth Worden was first placed in commission Aug. 3, 1963, at the Boston Naval Shipyard. The ship is seventh in a series of Terrier-armed ships to undergo fleet modernization.

Pomona operation of Electro Dynamic Division has been directly involved in this modernization program since its inception as the specialized systems test contractor. R. J. Robertson is General Dynamics training representative in the Bath area and A. R. Pendergraft is senior GD representative at Bath Iron Works.

N. J. Hammond, manager of system activation and support, and J. F. Muse of marketing represented Pomona at the recommissioning ceremonies.

Pioneer 4410 Now 'Retired'

A pioneer 4410 recorder, forerunner of today's sophisticated family of Micromation recorders powered down for the last time Dec. 15.

Actually a modification of a 4400, the recorder was installed in early 1966 at the Social Security Administration in Baltimore, Md. Appropriately, its last printed data consisted of an application for Social Security retirement benefits!

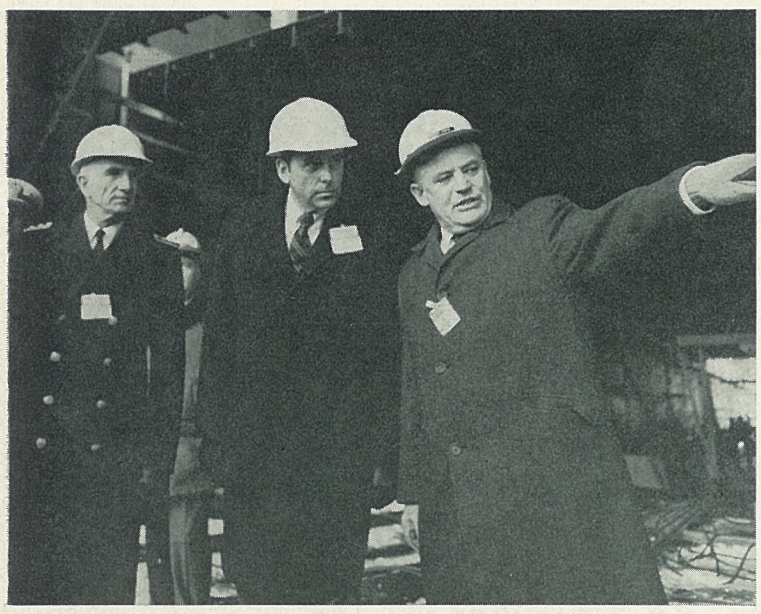
A versatile 4440 Micromation Recorder, delivered to Social Security by DatagraphiX last November, will assume tasks previously performed by the workhouse 4410.

Although a number of 4400s were manufactured, only two were modified. The other, a 4411, is still in operation with the original user.

Dr. M. A. Frost Invited To Witness Launch

Dr. M. A. Frost, senior design engineer in Dept. 61-0 at Fort Worth has received a personal invitation from the office of Robert Gilruth, director of Manned Spacecraft Center in Houston, to be a guest for the launching of Apollo 14 on Jan. 31.

Dr. Frost plans to leave Jan. 29 for a tour of Cape Kennedy facility and briefing before the launch.



MARITIME LEADER—Andrew E. Gibson, center, newly appointed Assistant Secretary of Commerce for Maritime Affairs, and RAdm. George H. Miller, USN, inspect construction progress of world's largest dry cargo ship, Lykes Seabee, during recent visit to Quincy Shipbuilding Division of General Dynamics. Shipyard's director of operations, Frank Horan, explains design features during tour.

Preble, Reeves End Phase III

USS Preble (DLG-15) and USS Reeves (DLG-24) both completed Phase III of the DLG Modernization Program last month with missile firings at the Barking Sands Missile Range, Hawaii.

Preble and Reeves are the fifth and sixth in a series of Terrier ships to complete the Modernization Program. Others were USS Leahy (DLG-16), USS Harry E. Yarnell (DLG-17), USS Gridley (DLG-21) and USS Farragut (DLG-6). The USS Worden (DLG-18), which was recommissioned earlier this month, will begin Phase III of its modernization program in February.

General Dynamics is specialized systems test contractor for the program in which a total of 20 ships are scheduled for fleet modernization. Major responsibilities of the specialized systems test team include training crews in operation and maintenance of combat systems and participating as required in troubleshooting and resolution of problems.

C. T. Pearson of systems activation and support center is Pomona operation's project manager for the modernization program. General Dynamics' representatives assigned to the Preble were C. W. Johnson and A. J. Smith Jr. On the Reeves were L. C. Cosby and Clifford Endresen.

Engineers Teaching For Evening College

Two Fort Worth operation engineers will teach courses during the spring semester through Texas Christian University's Evening College.

Dr. Jon Sollid, senior research scientist, will teach coherent optics, a special problems physics course. Dr. Sherrell Manning, senior structures engineer, will teach a practical course in aircraft structural analysis.

Both classes will meet in the new Sid W. Richardson Physical Sciences Building.

Under Secy. Warner Speaker at Launch

The Hon. John W. Warner, Under Secretary of the Navy, was principal speaker at the Jan. 16 launching of the nuclear attack submarine Archerfish at the Electric Boat Division. The Secretary's 12-year old daughter, Mary Conover Warner, christened the 292-foot submarine.

The keel for the 4,200-ton Archerfish was laid June 19, 1969 by Mrs. James F. Calvert, wife of VAdm. Calvert, Superintendent of the Naval Academy.

Navy Orders Seven New Subs From Electric Boat

Secretary of the Navy John Chafee has announced award of three contracts for the construction of a new class of fast-attack nuclear-powered submarines to be known as the SSN 688 class.

The first contract was for the construction of the lead ship SSN 688 and the second and third contracts cover 11 additional submarines of the same class. These 12 represent the first increment of a new submarine program which, it is anticipated, will be augmented by additional ships of the same design in subsequent years.

The fixed-price incentive contract for the lead ship, SSN 688, is being awarded to Newport News Shipbuilding and Dry Dock Co., a subsidiary of Tenneco Corp., Newport News, Va., at a ceiling price of $83 million. (Naval Ship Systems Command Contract N00024-71-C-0270).

Two fixed-price incentive multiyear contracts, providing for the construction of 11 additional submarines are being awarded in this manner: four submarines are being awarded to the Newport News firm at a ceiling price of $249,500,000, and seven submarines are being awarded to the Electric Boat Division of General Dynamics at a ceiling price of $428,074,000.

* * *

The award of a contract for construction of seven high-speed nuclear-powered attack submarines to the Electric Boat Division of General Dynamics will enable the company to retain its team of experienced and skilled production workers who have built more than one-third of the Navy's nuclear submarine fleet.

The SSN 688 class is the first new multi-ship class of attack submarines since 1962 when the SS 637 Sturgeon-class submarines were authorized. A total of 37 Sturgeon class have been funded and Electric Boat Division has had contracts for 12, four of which are still under construction.

In view of the need for advance planning and the procurement of long lead time components, the contract award will not have any immediate impact on the employment level of 12,000 at the Electric Boat division. The company currently has openings, however, for 150 experienced shipbuilders in the following trades: pipefitters, outside electricians, carpenters, welders, outside machinists, crane operators.

TRANSMITTER—Len Holden, General Dynamics quality assurance representative, accepts first Standard ARM missile transmitter on fiscal year 1970 buy from Final Inspector Marie Oleviero at General Instrument Corporation's Electronics Systems Division in Hicksville, N.Y. Holden has been assigned as Pomona's representative at GIC for past three years.

Two Service Reps Circle World Aboard Navy Aircraft Carriers

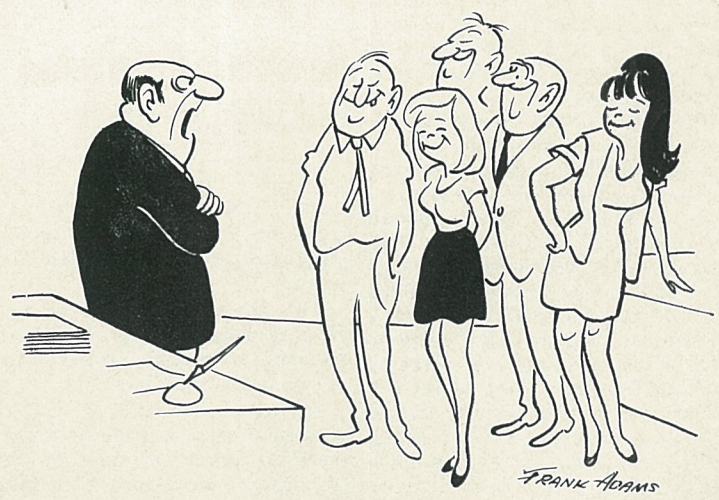
Two senior field services representatives returned to Pomona last month after circling the globe in opposite directions aboard U.S. Navy aircraft carriers.

Paul H. Heck began his journey in March of 1970 when he was assigned to Standard ARM training and maintenance duties with an air squadron temporarily located in the state of Washington. In April the squadron flew to Norfolk, Va., and joined USS America (CVA-66).

Heck worked with air and maintenance crews aboard America while that ship deployed around the world with stops at Puerto Rico, Rio de Janeiro, Philippines, Hong Kong, Japan, Taiwan and Okinawa. His return to Pomona was by plane from Japan.

E. E. Douville Jr. left Pomona early in 1970 and traveled westward to join USS Constellation (CVA-64). He left that ship to go aboard USS Saratoga (CVA-60) in Atlantic. His return to Pomona was via Oceana, Va.

One of the highlights of Douville's tour aboard the Saratoga was President Nixon's visit to that ship while in the Mediterranean area last year.



"We're just one big happy family here—and it's got to stop!"

First Intelsat Launch Slated Soon Over Eastern Test Range

Preparations are being completed at Complex 36A at the Eastern Test Range for launch of Atlas-Centaur 25 to place the first Intelsat IV commercial communications satellite into synchronous orbit over the Atlantic for the 77-nation International Telecommunications Satellite Consortium.

Launch of AC-25, which will include a second burn of the Centaur engines following a 14.8-minute coast in orbit, was tentatively scheduled for this Friday (Jan. 22). A combined readiness test of the AC-25 (Atlas 5005 and Centaur 20D) was planned early this week.

After the Atlas booster and sustainer engines lift the AC-25 and Intelsat IV (F1) into space, Centaur engines will have a 6.2-minute first burn to attain parking orbit. After the orbital coast, the propellants will be settled and the main engines refired for the 75-second second burn.

The Intelsat will be released from Centaur in transfer orbit 2¼ minutes after termination of the second burn through firing of two explosive bolts that release a V-shaped clamp, allowing 682 pounds of compressed spring force to propel the satellite from the launch vehicle.

Intelsat IV will be spin stabilized during a 5¼-hour coast to orbital apogee with its solid-fuel motor being used then to circularize the synchronous orbit at 24.5 degrees West longitude over the Atlantic.

The Centaur, after spacecraft separation, will be turned 90 degrees and removed from the Intelsat by remaining propellants being burned through the main engine thrust chambers to place it into an elliptical earth orbit.

Convair Aerospace-SD personnel at Cape Kennedy for the launch include K. E. Newton, director of launch vehicle programs; G. D. Davis, assistant director; B. R. Foushee, Centaur D program manager; C. J. Dunn, Atlas program manager; and G. W. Lucas and S. B. Chamberlain, program office engineers.

Also at Complex 36A this week are other members of an AC-25 final data review and launch support team from Kearny Mesa, many of whom also had been at ETR a week last month for product review of the AC-25.

Included are Charles Bierman, H. L. Hahn, D. W. Stein, Morrie Ogman, R. L. Nelson, F. W. Anding, J. T. Heffron, R. R. Eckberg, D. E. Quinn, R. A. Vogel, Jim Burkhardt, J. S. Miller, J. P. Silverstein, Paul Buchy, R. J. Reynolds, C. D. Pengelley, J. J. Andrews, Karl Kachigan, F. D. Kuenzel, A. L. Vinzant, and G. H. Broad.

Atlas-Centaur space launch vehicles also are scheduled to launch three additional Intelsat IV satellites by mid-1972.

Finance Dept. Mgrs. Named

Appointment of three managers within the Convair Aerospace-SD finance organization have been announced by C. L. Massey, controller.

B. J. Neal

Brandon J. Neal is manager of estimating (Dept. 195-0), Alan E. Hacker is manager of direct budgets (Dept. 194-0), and Leonard E. Shea is manager of management systems (Dept. 150-0).

L. E. Shea

A. E. Hacker

Neal has been manager of budgets since February, 1968, and served the three previous years as a budget supervisor. He has been with General Dynamics since joining the former Fort Worth Division in 1958 as a budget analyst.

He transferred to the former Astronautics division in 1961 as a supervisor in the direct budgets section and was manager of financial control for the Atlas weapons system from 1962 to 1965.

Neal attended Lake Forest College in Illinois and the University of Toledo.

Hacker has been with Corporate Headquarters as a budget analyst since April, 1968, where he administered the corporate capital program, including continuing economic analysis and coordination of all capital item requests from divisions.

He previously had served 1½ years with the former Astronautics Division as an engineering planner and master scheduler. He holds a bachelor's degree in civil engineering and a master's in business finance from Northwestern University.

Shea, a retired Navy captain with 27 years active duty service, has been acting manager of management systems since Oct. 27.

He has been with Convair Aerospace-SD since August, 1968, and formerly served as supervisor of methods and procedures (Dept. 170-2) and as a development project engineer on the S-3A proposal and other projects in research and engineering (Dept. 500-0).

Shea holds a bachelor's degree in chemistry from Providence College, R.I., a master's in business administration from Harvard Business School, and attended the Armed Forces Staff College and Naval War College.

Medical Deductions For Taxes Itemized

Convair Aerospace-SD employes itemizing medical deductions on their 1970 income tax returns may deduct dependent insurance premiums for the period in which they were paid.

Salaried employes paid $1.34 bi-weekly Jan. 1 through Sept. 27 for a total of $26.80.

Hourly employes paid $2.93 weekly until premiums ceased.

Non-represented hourly employes paid 41 premiums from Jan. 1 to Oct. 12 for a total of $120.13.

Following is a listing for other hourly employes by bargaining unit with maximum number of premiums, period during which they may have been paid, and totals:

IAM — 41, Jan. 1 to Oct. 12, $120.13; IBEW—44, Jan. 1 to Nov. 2, $128.92; EAA—46, Jan. 1 to Nov. 16, $134.78; IATSE—47, Jan. 1 to Nov. 23, $137.71; UAPP —49, Jan. 1 to Dec. 7, $143.57; IUOE — 52, Jan. 1 to Dec. 28, $152.36; UPGWA—52, Jan. 1 to Dec. 28, $152.36.

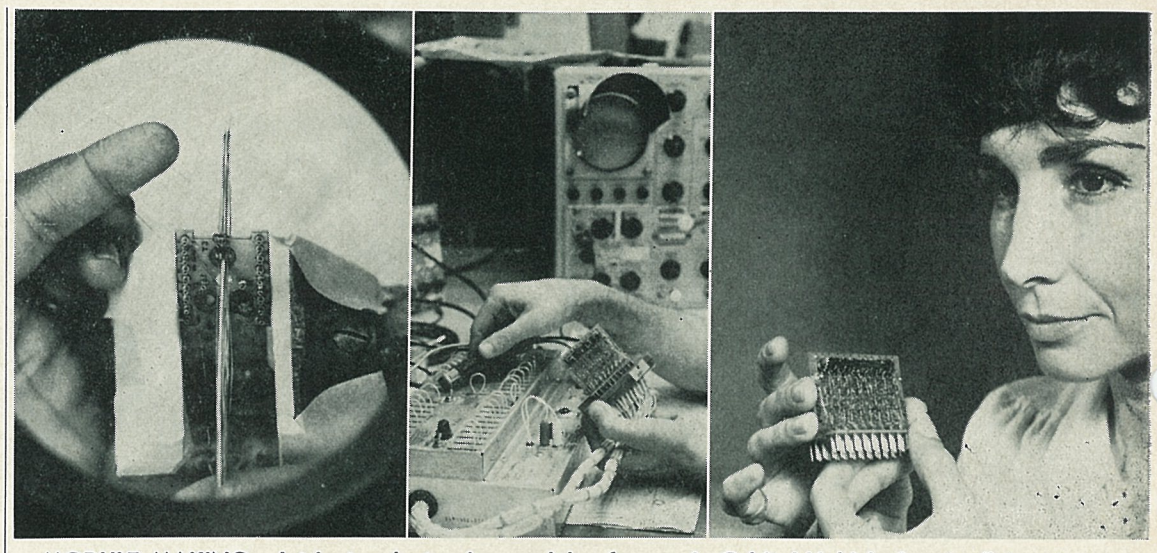
Handbook Distributed Outlining Benefits

Copies of a revised Salaried Employe's Group Insurance Plan booklet were being distributed to all Convair Aerospace-SD salaried employes through supervision last week.

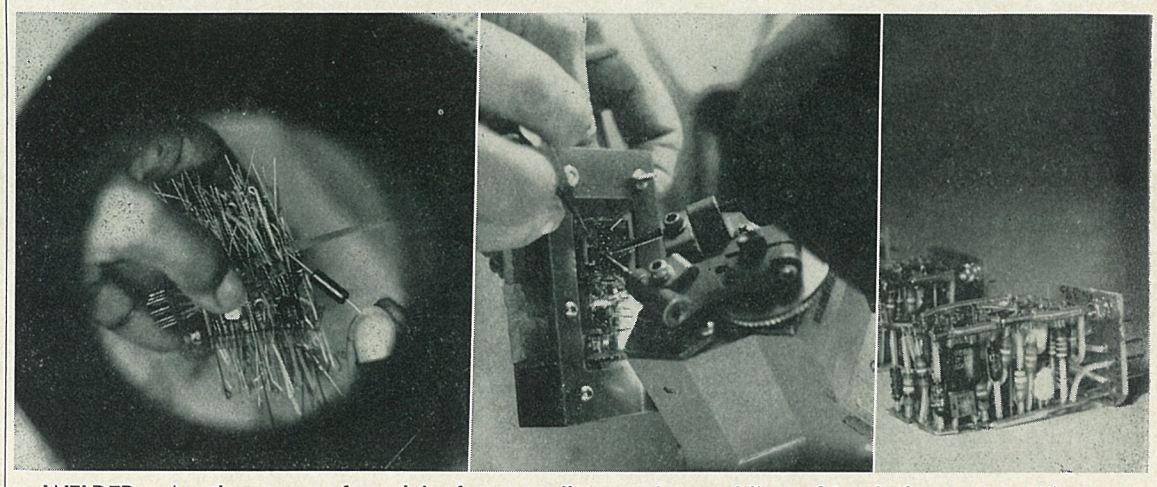
The updated booklet contains all improved benefits implemented last year and replaces four previously issued booklets.

All salaried employes' and dependents' basic and major medical benefits described in the new booklet are provided at company expense.

Questions may be directed to employe benefits, ext. 2657 KM.



MODULE MAKING—Intricate electronics modules for use in Orbital Vehicle-1 autopilot systems are being prepared in Convair Aerospace-SD engineering lab in Bldg. 33 at Kearny Mesa. Photos, from left, show shuttle (needle) being used to wind 36-gauge wire onto core before additional components are added and soldered; a module is tested for required electrical response; and Fabie Matz, Dept. 780-2 electronics assembler, shows finished module after protective polyurethane conformal coating has been applied.



WELDED—Another type of module for autopilot requires welding of leads from up to 64 components to a nickel ribbon on a fiberglass board about an inch square in size. Photos, from left, show components being inserted in proper position in photo-printed mylar; module mounted in a holding frame for welding of component leads to the nickel ribbon; and welded module as it appears after completion.

Salvage Dates Set For 1971

Salvage sales dates at the Lindbergh Field salvage yard have been announced for 1971.

According to R. H. Lange, material sales supervisor, the following schedule will be in effect: Jan. 9, Feb. 6, March 6, April 3, May 1, May 22, June 26, July 24, Aug. 21, Sept. 18, Oct. 16, Nov. 13, and Dec. 11.

Lange points out that anyone wearing tennis shoes, open-toe sandals, and other soft soled shoes is not permitted in the yard, since this type of footwear is a personal safety hazard. Additionally, children under 15 years are not allowed inside.

The LF salvage yard is located near Gate 5 with ample adjacent parking. Yard hours are from 8 a.m. to noon and inquiries may be directed to ext. 2154 LF.

Con-Trib Approves Grants of $35,500

Grants totaling $35,500 were approved by the Convair Employes' Con-Trib-Club committee in meetings in December.

A $15,000 grant was approved for the San Diego Mayor's Council on Youth Opportunity for its summer programs. A $9,600 grant for the United Fund of Brevard County, Florida, was approved on recommendation of division employes there.

Other grants included $2,500 to the Salvation Army for its Christmas programs, $2,400 to Neighborhood House for general operating expenses, $1,500 to San Diego Mental Health Association for general operating expenses, and $1,500 to Planned Parenthood Association of San Diego County for general operating expenses.

Also $1,500 to Muscular Dystrophy Associations of America Inc. for general operating expenses in San Diego County; $1,000 to Fellowship Center, a male alcoholic rehabilitation center in Escondido, for general operating expenses; and $500 to San Diego Youth Services, Inc., for general operating expenses for The Bridge, a home for runaway juveniles.

Simple Techniques Aid Production Of Electronic Modules for OV1s

Some new but simple techniques are being used to reduce time required to prepare intricate electronic modules for use in autopilot systems for two Orbital Vehicle-1 spacecraft that are being produced by Convair Aerospace-SD.

Small components for use in assembly of the modules in the engineering laboratory in Bldg. 33 at the Kearny Mesa plant are being placed in small bins after their leads have been checked for weldability.

Prekitting then is accomplished by the components needed for three to six modules being pushed into a piece of styrofoam that has been covered by a Xerox copy of a "loading sheet." The loading sheet has each component listed by reference number in numerical order.

"This makes it easy to spot shortages and reduces time required for the module assembler to locate each component as it is needed," said Ed Maurer, a Dept. 551-4 senior electronics engineer.

A copy of the loading sheet also is attached to the back of the "planning traveler" and the module assembler makes a check mark as she removes each component for use in one of the welded or soldered modules.

Verification that the proper part is installed in the module rests with the assembler doing the work and is documented with her personal Craftsmanship stamp.

Because of the limited production of electronic modules for the OV1 autopilot system, the modules are being assembled in the engineering laboratory with only those personnel working on the program handling components.

Ed Cormier is in charge of the project for Dept. 551-4. Assisting are Maurer, Wayne Williams, and Lou Thornillo, all senior electronics engineers, and Arlander Favors, engineering manufacturing development technician.

"Close cooperation and direction by engineering and use of a small, close-knit group from the electronics factory to handle all production operations for the modules in the engineering lab will enable us to complete them as economically as possible," Cormier said.

Thirty-three different types of modules are being developed and produced — with a total of 181 separate modules required for the two OV1 autopilot systems.

Salvage Schedule

Next employes sales day at the Convair salvage yard, Lindbergh Field plant, will be Saturday, Feb. 6. Hours are from 8 a.m. until noon. Entrance is by badge. Children and pets are not allowed inside the yard. Also not permitted are canvas or open-toed shoes and bare feet.

3-Unit Courses To Start Feb. 3

Educational services will offer 12 spring semester 3-unit courses in conjunction with the San Diego Community Colleges to all General Dynamics employes at the Lindbergh Field plant beginning Feb. 3.

Registration will be at the first class meeting and $1.50 student body fee is payable then. All classes have limited enrollment and pre-registration through educational services, ext. 2564 LF is advisable. Classes will be held from 4-7 p.m. unless otherwise noted.

Monday—Human Relations II, D. K. Chigos; Production Planning, W. E. Magnuson; Shop Math, J. C. Watt; Shop Math (for second shift, 12:15-3:15 p.m.), C. L. Planchon.

Tuesday—Human Relations I, H. M. Rubin; Advanced Industrial Economics, Chigos.

Wednesday — Introduction to Supervision, Rubin; Personnel Administration, E. W. Thurston; Effective Speaking (for second shift, 12:15-3:15 p.m.), Thurston.

Thursday—Effective Speaking, Rubin; Industrial Blueprint Reading, E. E. Chavez; Industrial Blueprint Reading (for second shift, 12:15-3:15 p.m.), Planchon.

CRA Calendar

(For information on CRA activities call CRA headquarters, ext. 1111 KM. Deadline for next issue of GD/NEWS is Jan. 26. Call ext. 1071 LF or 3322 KM. All meetings ar held in CRA Clubhouse unless otherwise noted.)

★ ★ ★

ADVENTURERS—Meet 7:30 p.m. tonight.

ARCHERY—Meeting 7:30 p.m. Jan. 26.

BADMINTON—Play 7-10 p.m., Mondays, Federal Bldg., Balboa Park.

BICYCLE CLUB—Call Bob Williams, ext. 1148 LF for information.

BRIDGE — Duplicate bridge sessions, 7:30 p.m., each Friday.

CERAMICS—Meet 9 a.m.-noon and 7-10 p.m., Tuesdays and Thursdays.

CHORUS—Rehearsals 7:30 p.m. Mondays.

COUNTRY & WESTERN MUSIC—Meet 7:30 p.m. each Thursday.

FENCING—Workouts and instruction 7:30 p.m. Fridays.

GOLF—Cottonwood tourney, Feb. 6-7, 7 a.m. tee-off.

GUN CLUB—Fun shoot, 9 a.m. Jan. 31, Gillespie Field gun range.

HEALTH CLUB — Open 9:30 a.m.-10 p.m., Monday through Thursday; 9:30 a.m.-9 p.m., Fridays; 9 a.m.-noon, Saturdays; "women only" weekdays, 9:30-11 a.m.

ICE SKATING—GD family skate night 6:15-7:45 each Thursday, House of Ice, Interstate 8 and Lake Murray Blvd. Flat rate fee $1 (includes skates).

MINIATURE RAILROAD—Work sessions Saturdays and Sundays, CRA Missile Park.

MODEL HO RAILROAD—Work sessions 7 p.m., each Tuesday, CRA Missile Park.

ORGAN CLUB—Meet Jan. 26, 7 p.m. Jack Cooper's home, 6015 Broadmoor Dr., La Mesa.

PISTOL CLUB—Shoot 9:15 a.m. Jan. 24, Police Pistol Range.

RADIO CLUB — Meeting 7:30 p.m., Jan. 21.

RIFLE CLUB—Senior shoot 7 p.m., Jan. 27; junior shoot 9 a.m., Feb. 6; Gillespie Field Range.

ROADRUNNERS — Meet 7:30 p.m., Jan. 28, Gillespie Field Clubhouse.

SAILING—Meeting 7:30 p.m. Jan. 27.

SCULPTURE—Workshop sessions 7:30 p.m. each Monday.

SKI CLUB—Meet 7:30 p.m. Feb. 2, South Bay Club. Mammoth Mountain weekend, Feb. 5-7. Week in Sun Valley, Feb. 28-March 7.

SQUARE DANCE — Dance 8-10 p.m. each Thursday.

TENNIS — Tournament on Mesa College courts, weekends Jan. 23 through Feb. 14.

TOASTMASTERS—Convair Toastmasters meet 4:30 p.m., each Wednesday. Dynamic Toastmasters meet 5:30 p.m. Thursdays.

TRAILERS—Meet 7:30 p.m. Feb. 2.

Water Skiers Buy New Boat

Water ski enthusiasts in the Convair-Don Diego Ski Club have a new means of locomotion — a 16-foot fiberglass Reinell outboard tow boat with an 85-horsepower Evinrude engine.

The new boat, peacock blue in color and carrying the Convair name on its hull, was obtained recently by the club, along with the engine and a new trailer, at a cost of about $2,700.

The new boat and another owned by the club, a 14-foot Glaspar with a 100-horsepower engine, are being used to tow club skiers in Mission Bay at the southeast end of Crown Point from 9 a.m. to 2 p.m. Sundays (except weekends when many club members are on snow ski trips).

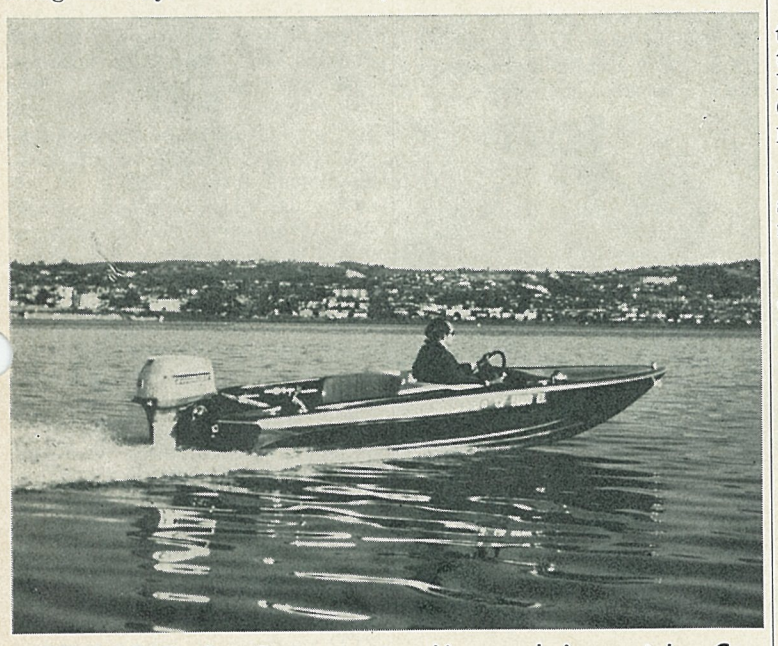
Members pay a nominal fee for ski "rides" (several turns around the bay) to help defray cost of gas, oil, and boat accessories.

Instruction for beginners is always available and the club has double learning skis for adults and children. Ability to swim is mandatory and ski belts or jackets must be worn as a safety precaution.

Work parties are scheduled twice a month for maintenance of the boats, which are kept stored in rented garages in Pacific Beach when not in use, and members help with clean-up of boats after each ski session.

Water ski trips to Buckskin State Park on the Colorado River are scheduled about three times a year.

Three members of the Ski Club, Roy Poston and Charles and Margaret Hyde, garnered "penguin" awards from Mission Bay Ski Club by taking a turn around the bay without wet suits on New Year's Day. Water temperature was a chilly 55 degrees—and all three were purposely "dunked" along the way.



TOW BOAT—Roy Poston, water ski race chairman, takes Convair-Don Diego Ski Club's new tow boat on first spin around Mission Bay. The new 16-foot boat is equipped with an 85-horsepower engine.

ETR Linksmen Earn Prizes

Winners of the holiday golf tournament sponsored by the CRA Golf Club at the Eastern Test Range last month took home capons, canned hams, ducks, and Cornish game hens for their efforts.

Flight winners, all receiving capons, were Charles Amedeo (73), gold flight; Tom Weber (66), blue flight; and Ralph Sather (73) Calloway flight. In second place for the three flights and garnering the canned hams were John Mazza (74), Robert England (68), and Fred Loud (74).

Third place winners receiving ducks were Murphy Wardman and Digger Ljungquist, tied at 74 for gold flight honors; Charles McClain (74), blue flight; and Clarence Cox (74), Calloway flight.

Pairs of Cornish game hens went to Sam Carlile for longest drive and to Loud for closest-to-pin shot. A blind bogey drawing concluded the outing.

About 30 ETR employes currently are participating in the Golf Club's tournaments and others are invited. Phone Weber, ext. 7955, for details.

Wingo Instruction Classes Scheduled

Free "Wingo" instruction classes are being offered to General Dynamics employes at the new Wingo facility at 8950 Clairemont Mesa Blvd.

Each class will have two 1½-hour sessions. The first class is scheduled for 6:45 p.m. on Feb. 2 and 9. On Feb. 3 and 10 a special second shift session will be held at 1 p.m. and another is slated for 8:30 in the evening.

Wingo is a new indoor shooting game similar to trap or skeet shooting.

Registration may be made through CRA Clubhouse, ext. 1111 KM. Deadline is Jan. 29.

Rincon Wins Championship

Eddie Rincon, a 13-handicap golfer from Dept. 400, shot a net 69 to take the CRA Golf Club's 1970 plant championship over Cottonwood links.

Terry Kell, CRA golf commissioner, said the plant championship was played over two weekends in December with 202 players in the first round being narrowed down to 40 finalists on Dec. 31.

Rincon received the championship trophy and a $250 entry for the Andy Williams 1971 San Diego Open.

Highlight of the event was a hole-in-one carded by John Powell of Dept. 401. He easily won "closest to the pin!"

George Putness and Steve Esterline were runners-up to Rincon and both received sets of professional golf clubs and a trophy.

Flight winners were Russ Davis, Frank Kelly, W. T. MacCarthy, Ray Demitrowicz, Hendrick Vandersluis, Bill Reader, Bud Swindall, Bob Keef, Jess Gonzales, and Joe Bain.

CRA Golf Club's next tournament will be at Cottonwood Country Club Feb. 6-7 with tee-off at 7 a.m. Reservations may be made through CRA Clubhouse, ext. 1111 KM beginning Feb. 1.

Eight Events Listed For Tennis Tourney

CRA Tennis Club and Convair Management Club will sponsor a tennis tournament for employes and family members with competition in eight events scheduled weekends Saturday (Jan. 23) through Feb. 14 on Mesa College courts.

Included are advanced men's doubles, 9 a.m. Jan. 23; intermediate men's doubles, 9 a.m. Jan. 24; advanced men's singles, 9 a.m. Jan. 30; novice men's singles, 1 p.m. Jan. 30; intermediate men's singles, 9 a.m. Jan. 31; novice men's doubles, 1 p.m. Jan. 31; mixed doubles, 10 a.m. Feb. 7; intermediate women's singles, 1 p.m. Feb. 13; and novice women's singles, 1 p.m. Feb. 14.

Bob Herold, CRA commissioner, is tournament chairman. Other members of the committee, taking reservations for events, are Cecil Norwood, advanced, ext. 2821 KM; Milt Kreml, intermediate, ext. 2864 KM; Manuel Fernandez, novice, 279-8014; and Connie Bates, women's events, ext. 2776 KM.

Mgt. Assn. to Hold 'Night at Caliente'

Tickets for a Feb. 13 Convair Management Association "night at Caliente" for greyhound racing are on sale at $3.75 each from association boosters.

Margarita cocktails will be served at 7 p.m. and dinner at 7:30 consisting of salad, carne asada (broiled sirloin) with Mexican side dishes, rolls, dessert, coffee, and wine.

Corsages will be provided for the ladies. Free bus transportation will be provided from the Mexican side of the border at 6:45 p.m. and returning at 11 p.m.

Ties must be worn by men. Women will not be admitted in slacks. Children are welcome but must have full-price tickets.

Mike Alianelli is chairman of the event with Gerry Nuss as co-chairman and Art Medrano as transportation chairman.

Schneider's 292 Wins Master-Class Shoot

Red Schneider fired a 292 total to take first place among master-class shooters in the CRA Pistol Club's match Jan. 10 on the police range. Dick Sutton was first in expert class at 284 and James Thomas in the sharpshooter division at 216.

Winners of the .22 calibre short national competition were Jerry Lehrer (278), first; Harry Black (276), second; Sutton (275) third, and Charles Kropp (271), fourth.

SKI SCENE—Distant peaks provide beautiful backdrop June 9 for Convair-Don Diego Ski Club members and guest at top of June Mountain's "sunrise run." From left are Mel Knoepp (a guest), Wanda Foster, Cheryl Kiger, Ron Waterston, and Iris Tazelaar. Another club group is at Aspen, Colo., for skiing this week.

Skiers Spending Winter Vacations in Colorado

Thirty-eight members of the Convair-Don Diego Ski Club are on a week's winter vacation for skiing at Aspen and Vail, Colo.

The skiers flew to Denver via Western Airlines Saturday morning (Jan. 16) then drove to Aspen in rental cars, stopping along the way for a half day of skiing at Breckenridge and Arapaho Basin.

The group is quartered at the Alpine Haus Lodge in Aspen and had planned to ski from four lifts in the area. Skiing at Vail is scheduled Saturday on the return trip. Joe Harris is trip leader with Helen Navoy assisting.

Forty-five club members and guests also had "perfect" skiing weekend before last (Jan. 9-10) at June Mountain in the Sierras about 420 miles north of San Diego.

The group left the CRA Clubhouse after work Jan. 8 by charter bus and leased the entire Fern Creek Lodge for the weekend. The bus also was used to shuttle skiers between the lodge and ski lifts and other resort facilities about two miles away.

One of the guests making the trip was Mel Knoepp of KFMB-TV who planned to cover the outing on one of his morning "Sunup" shows.

Ralph Kiger, trip leader, said weather was "terrific" for skiing both days with excellent snow condition for use of all four chair lifts at the mountain resort. A big steak fry on Saturday night, with the meal prepared by skiers themselves, was one of the outing's highlights.

The snow skiers also have scheduled a weekend at Mammoth Mountain Feb. 5-7 and a week trip to Sun Valley, Ida., Feb. 26 through March 7. The club's next meeting will be at 7:30 p.m. Feb. 2 at the South Bay Club recreation lounge, 3866 Ingraham St., Pacific Beach.

New Toastmasters Officers Installed

New officers of Convair Toastmasters Club 3745 were installed Jan. 6.

They are Harvey E. Seibert, president; Tom J. Phillipp, educational vice president; Charles L. Baker, administrative vice president; William H. Pfender, secretary; Robert W. Squire, treasurer; and Harry D. Akers and Willard S. Brown, sergeants-at-arms.

Harold Story, district governor and a charter member of the club, was installing officer. The club meets from 4:30 to 6:30 p.m. Wednesdays in Room C of the CRA Clubhouse.

KEOUGH TO TALK ON NORWAY TREK

"Across Norway—on foot, by bus, train, and boat," a slide presentation of Norway's fjords, mountains, rivers, villages, sea coast and parks will be given by Nick Keough at the CRA Adventurers meeting at 7:30 p.m. tonight (Jan. 20) in the CRA Clubhouse.

Be sure to use the ZIP code when addressing mail. It speeds up delivery!

Phone Reservations To Go Into Effect

Reservations for CRA-owned trailers, cabins, and tents at Pinecrest Park in the Cuyamaca Mountains near Julian will be on a first-call basis by telephone only beginning Feb. 1.

Reservations for each month will be accepted beginning at 8 a.m. on the first working day of the preceding month at the CRA Clubhouse, ext. 1111 KM.

George Schmiedel, supervisor of recreation, said accepting phone calls only will give employes at all facilities a more equal chance to obtain reservations.

Trailers are $6 and $7, cabins $5 (primitive) and $10, and tents $3 and $4 per night—with additional charges for multiple family occupancy.

Camping fees are $2 per family per night. Weekend campsites are available on a first-come basis only.

Butane stoves and lanterns also may be rented for use at the park and charcoal and ice may be purchased there.

Toastmasters Judge Student Contest

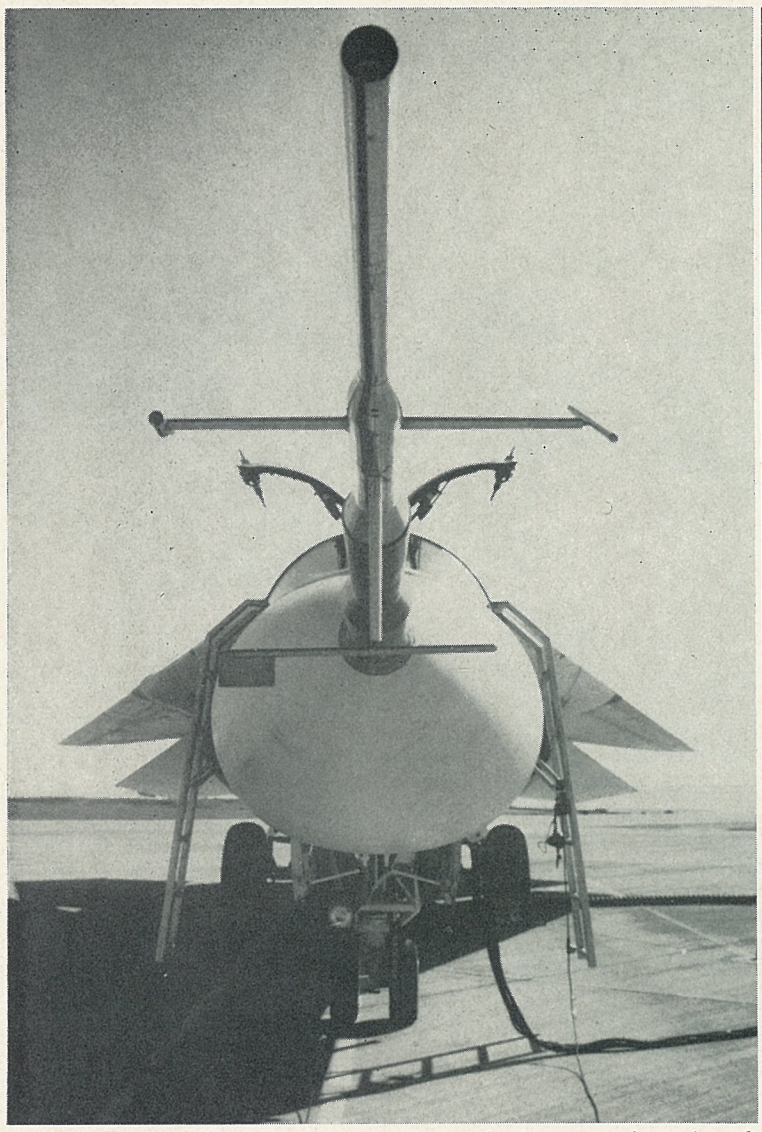
Three members of Dynamic Toastmasters Club 457—Ray Eichmann, Ray Sodomka, and Ed Schwartz—served as judges for a high school speech contest for American Legion Post 282 on Jan. 10.

Students from Helix and El Cajon High schools participated in the contest, the first step in a competition for an $8,000 American Legion scholarship. Each student gave a 10 minute prepared speech and a five-minute extemporaneous speech on the Constitution of the United States.

Archers Will Elect New Officers Jan. 26

Election of officers is scheduled during the 7:30 p.m. Jan. 26 meeting of the CRA Archery Club in the clubhouse.

Highlight of the evening will be movies of past club shoots. For information on club activities call Al Phipps, ext. 656 LF.



SNOOPY—Pitch and yaw vane, attached to regular aircraft boom, gives F-111 the "long" look, especially with wings swept. Special vane is used for even more precise measurement of aircraft attitude and air speed.

People Mobility

Personnel Transfers Within GD

(Following are recent personnel transfers within General Dynamics. In parentheses are dates when individuals joined the company.)

FRANCIS J. HEATH (1961) from Convair Aerospace-SD to senior engineer, Electro Dynamic-SD; WESLEY L. RUSSEL (1963) from Convair-SD to ED-SD as senior engineer; RICHARD A. BADA (1941) from Convair-SD to foreman, ED-SD; BERNARD A. KULCHIN (1957) from Convair-SD to ED-SD as director of industrial relations; HOWARD J. BRODERSEN (1946) from ED-Roch. to ED-SD as cost estimator; ALBERTO PRAT (1964) from ED-Roch. to senior test engineer, ED-SD; THOMAS W. RUNYAN (1953) from Convair-SD to senior engineer, ED-SD; HELGI HEINZMANN (1961) from Convair-SD to ED-SD as senior engineer; RICHARD W. ROESER (1957) from Convair-SD to senior engineer, ED-SD; PIERRE T. TAPERNOUX from General Dynamics International to continental Europe manager, Stromberg DatagraphiX; CYRIL F. TETHERTON (1967) from ED-Roch. to senior engineer, ED-SD; DAVID A. DAVIDSON (1967) from ED-Roch. to ED-SD as senior engineer; WILLIAM ROBISON (1969) from Convair-SD to ED-SD as senior engineer; DONALD E. HERBERT (1957) from Convair-SD to principal engineer, ED-SD; JOHN C. HERMAN (1961) from Convair-SD to ED-SD as senior engineer; MARTIN HAVEMOSE (1966) from ED-Roch. to senior engineer, ED-SD; DANIEL J. KOKEL (1966) from ED-Roch. to engineer, ED-SD; RICHARD J. REYBURN (1957) from Convair-SD to ED-SD as engineering laboratory manager; BURT A. REES (1956) from Convair-SD to design specialist, ED-SD; TERRENCE POWERS (1966) from ED-Roch. to ED-SD as engineer; ROGER E. SHIVAS (1966) from ED-Roch. to senior engineer, ED-SD; FOLKE R. SVENSSON (1968) from ED-Roch. to engineer, ED-SD.

CHARLES A. HESKETT (1954) from Convair-SD to ED-SD as design specialist; GEORGE F. HOBBS (1963) from Convair-SD to engineer, ED-SD; ARTHUR C. RICHARDS (1950) from ED-Pomona to ED-SD as foreman; MELVIN F. BAIN (1967) from ED-Roch. to ED-SD as test engineer; EDWARD L. MARSHALL (1964) from ED-Roch. to cost estimator, ED-SD; LEONARD FINE (1968) from ED-Roch. to ED-SD as senior engineer; JAMES R. FORGIONE (1966) from ED-Roch. to senior engineer, ED-SD; EGBERT POULOS (1968) from Convair-SD to ED-SD as senior engineer; JOHN F. PETERSON (1960) from Convair-SD to ED-SD as senior engineer; FISKE ISLER (1960) from Convair-SD to senior engineer, ED-SD; WILLIAM H. JOHNSON (1964) from Convair-SD to senior engineer, ED-SD; GRANT H. KRAMER (1959) from Convair-SD to foreman, ED-SD; ALBERT S. STOVALL (1968) from ED-Roch. to test engineer, ED-SD; GERALD F. ANDRUS (1966) from ED-Roch. to ED-SD at engineer; JOHN A. JUSTIN (1960) from Convair-SD to senior engineer, ED-SD; BEN A. PENNERS (1956) from Convair-SD to principal engineer, ED-SD; IRVIN WASSERBERG (1960) from ED-Roch. to ED-SD as logistics supplies supervisor; NORMAN E. BERNDT (1960) from ED-Roch. to test engineer, ED-SD; ROBERT B. OLSON (1968) from Convair-SD to ED-SD as engineer; JAMES A. KITSOS (1962) from Convair-SD to senior engineer, ED-SD; GILBERT H. WETTER (1969) from ED-Roch. to ED-SD as principal engineer; WAYNE W. BLANCHARD (1956) from ED-Roch. to senior engineer, ED-SD; DENNIS L. KUZARA (1967) from Convair-SD to engineer, ED-SD; RICHARD O. NISSEN (1960) from Convair-SD to senior engineer, ED-SD; RAYMOND E. BUSSETT (1966) from ED-Roch. to ED-SD as principal engineer; JAMES W. BRASCH (1966) from ED-Roch. to ED-SD as senior planning and control analyst; EDWARD A. LITTLEFIELD (1952) from Convair-SD to senior engineer, ED-SD.

Congressmen Combine to Propose Air Force Fire Fighter Capability

Six California congressmen have asked Secretary of Defense Melvin R. Laird to consider establishment of an Air Force aerial firefighting unit to attack forest fires such as those which swept the state last summer and since have created serious flood problems.

Canadair's CL-215 water bomber was lauded at a related news conference as "another possibility for increased efficiency" in fast control of forest fires. The CL-215 can scoop 1,500 gallons of water from a lake or ocean in 12 to 15 seconds and, cruising at 160 knots has much faster "turn around" than planes that must be filled by hose.

The six congressmen, who had held a series of special sessions during a three-week period to consider possible increased efforts by the federal government to aid in forest fire fighting, were Reps Barry Goldwater Jr., Bob Wilson Charles Teague, Jerry Pettis, John Rousselot, and John Schmitz.

They also asked the U.S. Forest Service for a full investigation to determine why permission was refused for a Canadair CL-215 and its crew to fight the 185,000-acre Laguna fire in San Diego County.

The CL-215 had been in San Diego four days while the fire was burning out of control and its services had been offered without charge by General Dynamics.

A letter to Laird signed by each of the six congressmen said an Air Force firefighting unit could provide excellent flight training exercises as well as illustrate to the taxpayers that national defense means more than just "fighting wars."

The letter pointed out that the summer fire in the San Bernardino mountains was within 15 miles of one of the nation's largest Air Force bases.

"Unfortunately, not a single Air Force plane was used to fight these fires, even though they raged for nearly a week," it stated.

The letter said the congressmen are "fully aware of the numerous technical difficulties to be overcome" but believe the proposal to use military aircraft for forest fire fighting "merits the research and technology."

During the press conference, Goldwater pointed out that a Canadair CL-215 had made 42 runs on a fire in the Los Angeles area in one afternoon "as compared to a tanker that can only make seven runs in an afternoon."

The congressman pointed out that small firefighting aircraft like those customarily used can carry only a few hundred gallons of water or fire retardent chemicals while large converted bombers could carry thousands of gallons.

The Canadair CL-215, only aircraft ever specifically designed for firefighting, now is being used for forest fire fighting in Canada and France.

Doug Adkins, a project pilot for Canadair since the CL-215 made its maiden flight in 1967, said a fleet of about 30 or 40 of the $1 million amphibious aircraft could provide complete forest fire protection for the United States.

The CL-215 can complete 35 circuits, assuming a fire 100 miles from base and five miles from a lake or ocean, before flying back to base, arriving there with 45 minutes of reserve fuel on board. The total amount of water dropped on this mission is 420,000 lbs.

MODEL OF EFFICIENCY—Rep. Barry Goldwater Jr. (R-Calif.) displays model of Canadair CL-215 water bomber at news conference called by six California congressmen in Washington. Other participants were Reps. Bob Wilson, Charles Teague, Jerry Pettis, John Rousselot, and John Schmitz.

"RAINS" CAME—Canadair CL-215 shown in action during fierce California fires.

Spain Orders Two CL-215s For Forest Fire Fighting

Spain has become the third customer for Canadair's CL-215 water bombers, following the announcement by the Government of Spain that it has purchased two of the Canadian aircraft, with an option to purchase a third.

The airplanes will be operated by the Air Ministry and would be used primarily to fight forest fires and also for fish seeding in rivers, agricultural fertilizing and seeding, customs control along coastlines, search and rescue operations and other uses. Spanish Air Force air and ground crews have already arrived at Canadair to begin training on the aircraft.

Spain's purchase follows those made by France and the Province of Quebec. A fleet of 10 CL-215s was sold to Le Service de la Protection Civile in France and since 1969 the aircraft have seen extensive service, including some of the worst forest fires in decades along the Riviera in the summer of 1970. Quebec is now in the pilot-training phase and will have a 15-aircraft CL-215 fleet in operation for the 1971 fire season.

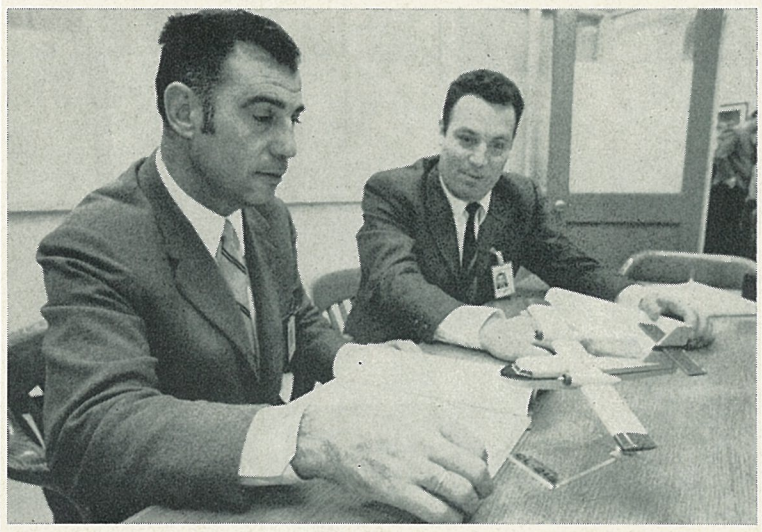
The CL-215 is the only airplane ever designed specifically to fight forest fires. It is a highly maneuverable, twin engine amphibian that can drop six tons of water on a fire on each pass. It may be filled on land by conventional hose and pump methods, or may pick up its load in from 16 to 20 seconds as it skims across the surface of the ocean, lake, river or water reservoir.

Operating on fires in southern California this summer, on a demonstration basis, a CL-215 scooped water from the Pacific Ocean and dropped it on fires in the Malibu district once every nine minutes. This contrasted with an average time between drops of 45 minutes for conventional land based planes which were obliged to return to an airport for refilling.

The CL-215's payload, endurance, drop speed, low speed handling characteristics, pilot visibility and ground turn-around capability combine to make the aircraft an ideal vehicle for the fertilizing and seeding operations for which the CL-215s will also be used in Spain.

The Spanish Air Force party at Canadair is headed by Major S. Esteban and Capt. R. Gonzalez, both pilots, who will return to Spain to act as instructors, as well as to take part in aerial operations.

The remainder of the Spanish Air Force party of 12 are senior NCO ground crew who are undergoing technical training at the Montreal plant. The pilots and ground crew are all stationed at Getafe Air Force Base, Madrid.



SPANISH PILOTS—Major S. Esteban (left) and Capt. R. Gonzalez, of Spanish Air Force, examine model of Canadair CL-215 water bomber, aircraft they, and other Spanish pilots, will be flying on fire fighting and other missions next summer in their native land.

SAN DIEGO EDITION

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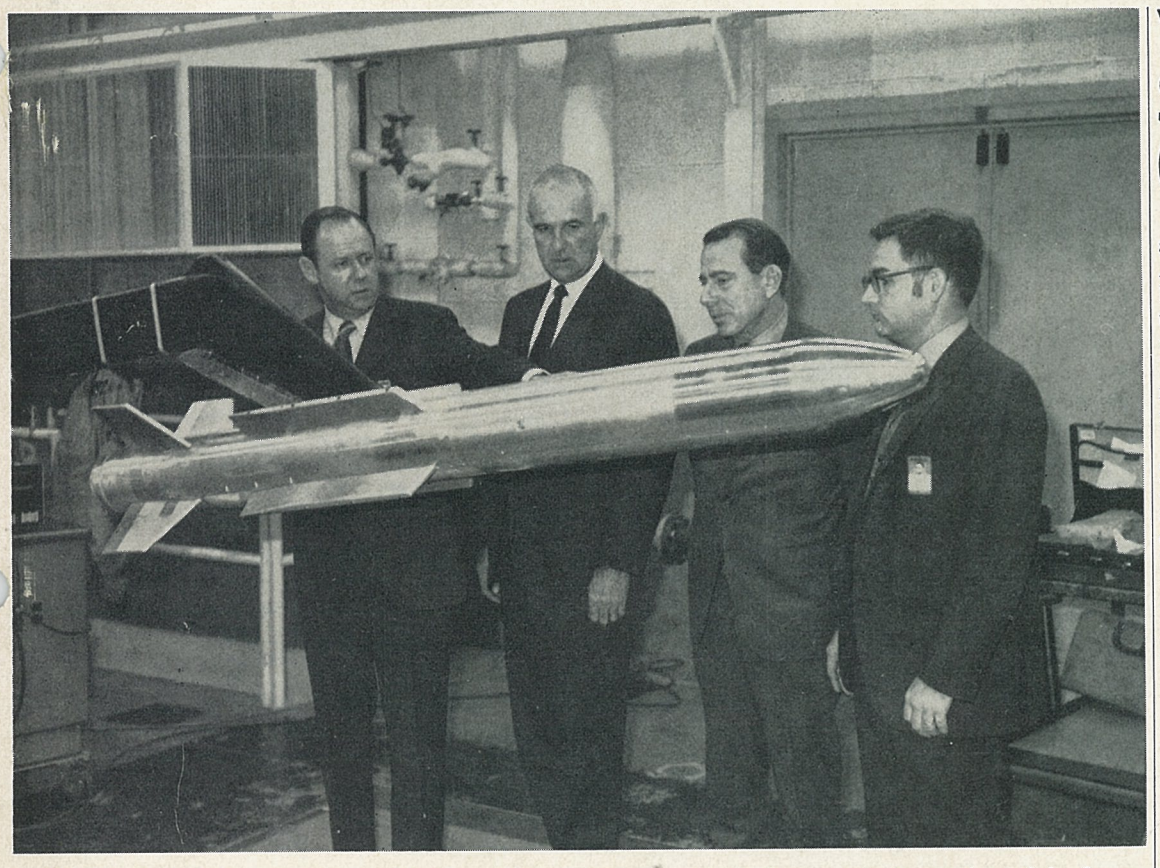

HARPOON TEAM — Boeing and General Dynamics executives view a wind tunnel model of proposed "Harpoon," U. S. Navy anti-ship missile in Boeing wind tunnel laboratory. From left: W. B. Adam, Boeing Harpoon program manager; Jack L. Bowers, president of Electro Dynamic Division; W. J. Morrow, vice president and general manager of Pomona operation; H. K. Hebeler, general manager of Research and Engineering Division, Boeing Aerospace Group. The General Dynamics team which includes Boeing and Honeywell will respond in March to the Navy's request for bids.

'Perfect Launch' Sends Intelsat On Space Trip

A "virtually perfect performance" by Convair Aerospace-SD's Atlas-Centaur 25 last week also launched a new era in international communications capability when it carried the first Intelsat IV satellite into space for the 77-nation International Telecommunications Satellite Consortium.

AC-25, after three straight days of aborted countdowns because of high winds over Cape Kennedy and a 36-minute hold at T-5 because of a down-range radar problem, lifted off Complex 36A at the Eastern Test Range at 7:36 p.m. Eastern time Monday (Jan. 25) with only nine minutes remaining in the "launch window."

The AC-25 mission included two burns of the Centaur high-energy upper-stage vehicle, the second following a 15-minute orbital coast.

The 17½-foot-high, 3,090-pound Intelsat IV is the largest communications satellite ever launched and has more communications capability than the other eight operational Intelsat satellites combined.

It was released from the Centaur 28.7 minutes after liftoff at a speed of about 20,000 miles an hour into a transfer orbit with an apogee of 19,398.37 nautical miles and a perigee of 295.53 nautical miles. This was within 7¼ miles of targeted apogee and ½ mile of targeted perigee.

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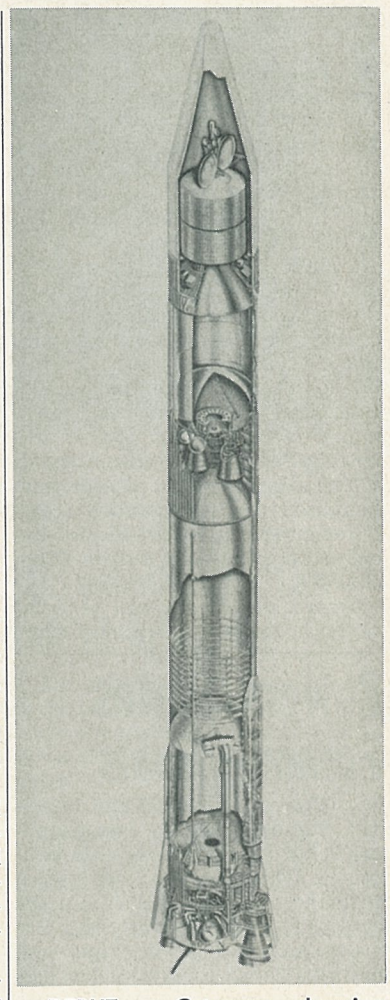

DEBUT — Cutaway drawing shows first Intelsat IV communications satellite atop Centaur high-energy upper-stage vehicle and Atlas SLV-3C booster. Overall length was 132 feet and weight at liftoff was 324,000 pounds.

Radio Frequency Noise Survey Made For NASA

Convair Aerospace-SD's Dept. 541-0 antenna and compatibility laboratories recently completed a comprehensive air and ground-level radio frequency interference (noise) survey of urban, suburban, and rural areas in Akron, Ohio, under a contract from NASA's Lewis Research Center.

M. M. Chazotte, assistant chief design engineer, said data accumulated on six-track data tapes are being correlated by NASA and will be useful in the design of future communication systems.

A similar noise-level survey of the Phoenix, Ariz., area had been conducted under a separate contract in 1968. The data collection systems used in both studies had been developed and proofed-out in tests in the San Diego area with several changes to improve quality of data collection being incorporated for the Akron study.

(Continued on Page 2)

Bowers, Morrow Outline Pomona Operation Goals

Management by objectives was emphasized along with increasing quality and reducing costs by both Jack L. Bowers, president of Electro Dynamic Division, and W. J. Morrow, vice president and general manager of Pomona operation, in talks at the January meeting of Pomona Management Club.

Morrow opened the "Look at 1971" discussions by reviewing events affecting the defense environment since C. F. Horne, L. E. Spear and he conducted a similar Management Club program in fall of 1969. That message then was "tighten belts" and Morrow pointed out actions taken at Pomona toward that goal.

"We aren't there yet, but we're becoming competitive," Morrow declared. "We're an important part of the national defense strength, but the needed defense must come for fewer dollars. The environment now is even tougher than last time."

To meet this greater competition in the tactical missile field, Morrow said Pomona "is performing well on our contracts, paying close attention to planning, reorganizing for more efficiency, and getting tougher."

He pointed out that Pomona has done well in the past in three ways: expanding products (sale of Redeye to Sweden), extending products (Standard Missile to Standard ARM), and inventiveness leading to new products. Examples of new programs in various stages of development include Harpoon, CIWS, and Grasshopper.

Pomona objectives for 1971 listed by Morrow include: obtain additional orders for Standard Missiles, win the Harpoon development competition, obtain additional orders for Redeye, improve profitability, define and implement Management-by-Objectives program, improve Pomona Excellence program, and win the Navy "Participation," and "Achievement" awards, improve public relations and internal relations, achieve 20 per cent improvement in quality and have 100 per cent success in meeting contract requirements.

Bowers, following his introduction by Morrow, recalled Pomona's early days and progress from Bumblebee studies to Terrier, Tar-

(Continued on Page 2)

Electronics Systems 'Milestone' Reached for Improved Centaur

Another major milestone in Convair Aerospace-SD's Improved Centaur program was reached on schedule Jan. 25 when electrical power was turned on for a check of a full-scale prototype of the electronics systems for the Improved Centaur D-1A and its new companion Atlas SLV-3D.

Jim Fithian, assistant program manager, said the "power on" procedure was successfully completed with no significant problems being encountered. "It really worked beautifully," he said. "It did exactly what we had said it would."

The electronics prototype on the Centaur dock in Bldg. 5 at the Kearny Mesa plant included wiring over metal surfaces to simulate full-length launch vehicle tanks that was joined to the Centaur D-1 prototype equipment module and the module interface simulator. Power was supplied by newly designed ground support equipment.

The entire electronics system for the Centaur D-1 and Atlas SLV-3D will be checked out by the computer controlled launch set (CCLS) in Bldg. 4.

"The CCLS computer will think it is looking at a real launch ve-

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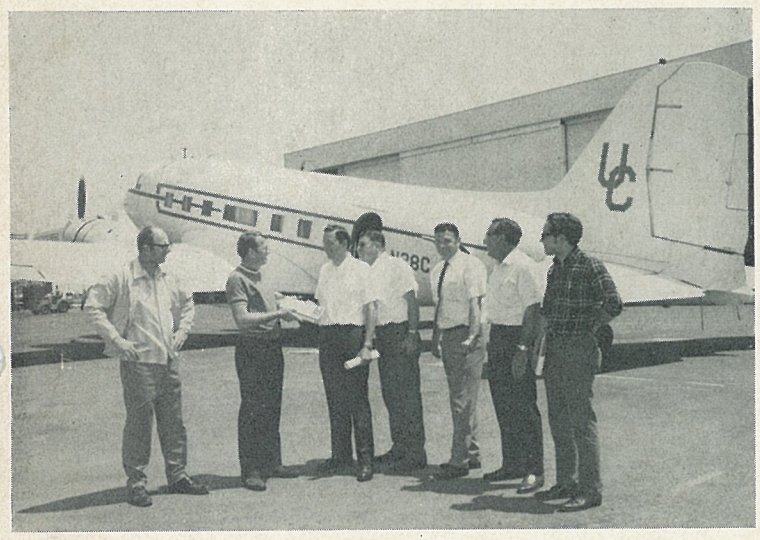
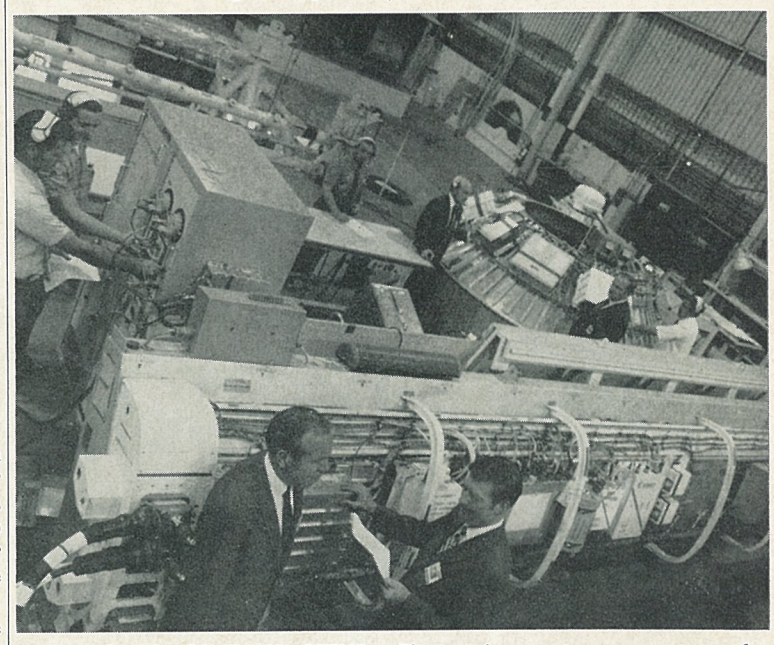


"NOISE" DELIVERY—Data tapes of radio frequency interference (noise) recorded during test flight over San Diego is delivered to Richard Jumont of NASA-Lewis resident representative's office, second from left, by A. H. Mills, program leader, prior to survey in Akron, Ohio, area. Others, from left, are M. M. Chazotte, assistant chief design engineer; David Harvey, pilot; Ed Howard, co-pilot; Paul Moallankamp, electronics technician; and Steve Kolupaev, electronics engineer.

Design Team Named For Jettison Study

K. E. Newton, director of launch vehicle programs for Convair Aerospace-SD, has appointed a special design team to develop an alternate jettison system for OAO-type launch vehicle nose fairings.

R. H. Thomas is leading the team effort. Other members include J. W. Beatty, mechanical design; E. H. Bock, mechanical design; G. G. Congdon, program aspects; D. W. Hosterman, mechanical design; W. C. Jungemann, analysis; J. S. Miller, electrical; and T. T. Tanalski, materials.



IMPROVED CENTAUR SETUP—Electronics prototype systems for Improved Centaur D-1A and Atlas SLV-3D are shown in wide-angle photo at Kearny Mesa factory. In foreground, adjacent to wiring on simulated Atlas tank, are C. E. Wilson, left, Centaur D-1 program manager, and E. E. Barringer, engineering test coordinator. Others, from left, are J. L. Stephens, J. G. Largent, E. H. Luke, S. D. Battle, Jim Lundquist of Teledyne, and Tom Kiernan of Honeywell.

Electronics Systems 'Milestone' Reached for Improved Centaur

(Continued from Page 1)

hicle," Stan Battle, a design specialist, commented. "It will even think we have engines on board."

Fithian said the "power on" procedure was completed by "working around" a couple of hardware items still to be received before full-scale testing of the combined electronics system begins later this month.

E. E. Barringer, Centaur D-1 engineering test coordinator, said the electronics system for the D-1 reflects improvements developed in the electronics field during the past 10 years and will be more simplified and reliable than that in the Centaur-D.

Improved Centaur's guidance and flight control system utilizes a new on-board computer with increased speed and capacity with related software for autopilot, attitude control, and sequencing functions. Autopilot and telemetry electronics no longer will be required for the Atlas booster.

The new computer also permits increased use of software (computer programs) for mission-peculiar requirements and in-flight changes.

Improved Centaur will have the same basic configuration, same engines, and same fuel as the Centaur-D but will launch a heavier payload.

Assembly of the first of the Improved Centaur D-1A vehicles is scheduled to begin in May. It will be used in the Pioneer G mission in 1973. Centaur D-1A vehicles also are scheduled for use in Intelsat and Mercury-Venus missions.

'Perfect Launch' Sends Intelsat On Space Trip

(Continued from Page 1)

Martin J. Votaw, COMSTAT west coast representative, was one of the first to telephone congratulations.

A solid motor on the Intelsat IV was fired Tuesday (Jan. 26) to circularize the satellite's orbit at synchronous altitude about 22,300 miles above the St. Peter and St. Paul rocks in the Atlantic between South America and Africa.

The Intelsat IV (F1), built by Hughes Aircraft Co., was undergoing engineering performance tests late last week and was tentatively scheduled to begin carrying intercontinental communications "traffic" Saturday (Feb. 6).

Ken Newton, director of launch vehicle programs for Convair Aerospace-SD, called performance of the AC-25 launch crew "just tremendous," especially in view of serious problems encountered during the launch countdown.

"We expect this to be just the first of a long string of commercial communications satellite launches for the Atlas-Centaur," he said.

"Our people did a 'hell of a job'," Gerry Lucas, Centaur program office engineer for the AC-25 mission, commented. "We had excellent support all the way down the line — from the telephone and computer operators who provided weather report support to the launch support team at Cape Kennedy who were available around-the-clock."

Special AC-25 launch support also was provided at Cape Kennedy by engineers and other representatives from three Convair Aerospace-SD vendor firms—Rocketdyne, Pratt and Whitney, and Hi-Shear.

Each of the Intelsat IV satellites will have a capacity for 6,000 two-way telephone circuits, 12 simultaneous color TV program circuits, thousands of teletype circuits, or a combination of these. The capacity for each will far exceed the total of the world's present submarine cables.

Bowers States Pomona Goals

(Continued from Page 1)

tar, Standard Missile and Standard ARM programs. He paid tribute to Pomona's good reputation with the customer and within the company, pointing out that Pomona has had fewer "ups and downs" than most "under the good leadership of Charlie Horne."

In a brief outline of the Electro Dynamic Division organization, Bowers noted that it was significant that there is new management at Pomona, at New York (David S. Lewis) and with our Navy customer (VAdm. Elmo R. Zumwalt Jr.) and urged all to "grow with them."

After outlining the variety of programs brought together in the new Electro Dynamic Division, Bowers emphasized the necessity for quality and efficiency. He urged everyone to find a way to contribute to the Company's goals.

"Quality and costs are measurable, so you can know how you are succeeding," Bowers said. In stressing the importance of management by objectives, he pointed out that these objectives must be "not just a listing, but something for everyone to think about, and work toward in their own bailiwick and wherever they can help."

He challenged everyone to work for new programs, new competitive abilities, quality and safety.

Disclosure Forms Available at LF, KM

Invention disclosure forms are now available for Convair Aerospace-SD personnel at the Kearny Mesa plant in the engineering library in Bldg. 4.

The patent department has been relocated to Bldg. 51 at Lindbergh Field, mail zone 103-10, ext. 1336.

Electro Dynamic-SD personnel may obtain disclosure forms from David Rich, legal counsel, or from the Convair Aerospace-SD patent department at Lindbergh Field.

SEAGOING GIFTS — Stanchions and oil painting were presented to officers of USS Worden (DLG-18) just prior to recommissioning of ship Jan. 16 at Bath Iron Works, Bath, Maine. Left to right: LCdr. Wm. A. Rucker III, USN, executive officer; Captain Wm. F. Clifford Jr., USN, commanding officer; N. J. Hammond Jr., manager of systems activation and support; LCdr. J. H. Rixie, USN, weapons officer, and J. F. Muse, Navy Point Defense marketing manager.

Foreign Firms To Join RAM

Convair Aerospace-SD has proposed to NASA the addition of five European aerospace firms, all from different countries, to its Phase B Research and Applications Module (RAM) preliminary design study team.

They are MATRA of France, ERNO of Germany, SAAB of Sweden, Hawker-Siddeley of the United Kingdom, and Fiat of Italy. All have worked together previously on space programs as a consortium called MESH, a name derived from the first letter in the names of four of the five companies.

W. W. Withee, RAM program director for Convair Aerospace-SD, said a teaming arrangement with the European firms will provide for an international outlook and an exchange of ideas and requirements for broadened participation in the program.

The U.S. and European cooperative effort, Withee said, would be in areas such as specific subsystems, experiment integration, instrumentation requirements, and data retrieval.

Convair Aerospace-SD, North American Rockwell Space Division, TRW Systems, and Bendix worked together on the Phase B proposal submitted early in January **(GD/NEWS, Dec. 16)** and will serve as the primary team for the study if awarded the contract.

Under the proposal, Convair Aerospace-SD will handle program and system integration, scientific payload requirements definition, and integration of all experiments.

North American Rockwell will have responsibility for manned operations and support systems, flight safety, shuttle and space station-related analyses, and RAM support module definition.

TRW Systems will handle scientific payload requirements (earth resources and space physics), communications and data management, thermal control, electrical power, and propulsion subsystems.

Bendix will have responsibility for scientific payload requirements (astronomy), onboard checkout, controls and displays, guidance, navigation and control systems, and data management ground interface.

RAM is envisioned as an economical and highly versatile laboratory for conducting a variety of experiments in conjunction with either the reusable space shuttle or a space station.

It would be 14 feet in diameter and up to 58 feet in length. It would be placed into orbit by the space shuttle orbiter and could be retrieved and returned to earth by the orbiter.

"The flexibility of the module, which could function either manned or unmanned during space operations, would make it an economical space vehicle with a potential for missions extending over the next two decades," Withee said.

"The RAM will provide versatile and economical laboratory factilities for investigations in many fields including astronomy, space physics, bioscience, earth surveys, materials sciences and processing, communications, navigation, and advanced technology in other fields."

For purposes of the Phase B preliminary design study, the first RAM launch would be planned for 1978 and would be a part of a modular space station with an orbital lifetime of 10 years or more or, as an alternative, would operate in a space shuttle sortie mode.

GORDON WILL HEAD DYNAMIC CLUB

Bill Gordon was installed as president of Dynamic Toastmasters Club 457 at a dinner meeting Jan. 14. Other new officers are Don Riordan, educational vice president; Dave Lukens, administrative vice president; Jim Hamill, secretary; Ken Gooden, treasurer; and Stan Horning, sergeant-at-arms.

ENGINEER OF YEAR—C. W. Schertz of Pomona, left, receives first Design Achievement Award of new Electro Dynamic Division from Jack L. Bowers, Electro Dynamic Division president. At right is W. J. Morrow, vice president and general manager of Pomona operation. Dr. L. F. Buchanan, vice president-research and engineering, had earlier presented Schertz with a plaque.

Electro Dynamic Award Goes to Bill Schertz

C. W. "Bill" Schertz, engineering staff specialist at Pomona operation, has received Electro Dynamic Division's 1970 Design Achievement Award in engineering.

The Engineer of the Year award was given under a Corporate program begun in 1969. Schertz received a certificate and $500 honorarium. He now becomes eligible for the General Dynamics Corporate Design Achievement Award which carries a certificate and $1,000 honorarium.

Schertz received the award for "his technical dedication which resulted in a feasibility demonstration of Phalanx and opened the door for establishment of a new major product line for General Dynamics." The program has been funded and is proceeding under the program management of John McSweeney.

Schertz made an outstanding contribution during 1970 in the development of advanced gun system techniques based on his original concepts. These concepts led to the technical performance demonstrated on the Phalanx system and the eventual award to General Dynamics of a contract to cover initial technical, scientific and program management efforts associated with the Phalanx system.

The selection was made after initial nominations by Electronics, Avenel and Pomona operations of Electro Dynamic Division. In addition to Schertz, candidates were R. L. Olson of Electronics and R. J. Brozek of Avenel.

Serving on the engineer-of-year selection committee with Jack L. Bowers, president, and C. D. Perrine Jr., vice president for tactical weapons programs, were the Electro Dynamic general managers and their vice presidents-research and engineering. At the final selection meeting in Pomona Jan. 15 were Bowers and Perrine representing the division; Sid Kirschner, manager, Avenel operation; W. J. Morrow, vice president and general manager, and Dr. L. F. Buchanan, vice president-research and engineering, Pomona operation; W. E. Bratton, vice president and general manager, and D. C. Prim, vice president-research and engineering, Electronics operation.

Olson, a design specialist at Electronics operation, was selected as a candidate for his technical efforts on a sensor program. His efforts resulted in sole-source procurement for development and manufacture of a number of a particular type sensor.

Brozek won his nomination at Avenel operation for his achievement in area of product improvement. Brozek's efforts resulted in major design features which lowered noise levels in electric motors and provided a significant marketing advantage.

Schertz joined General Dynamics at Pomona in 1951 and has supervised guidance design for Navy missiles, Redeye, Mauler and special devices.

Feb. 15 a Holiday For SD Personnel

Feb. 15 (a Monday) has been designated as a holiday for Convair Aerospace and Electro Dynamic personnel in San Diego in commemoration of Washington's birthday.

Other holidays for the year include:

May 31—Memorial Day.

July 5—Independence Day.

Sept. 6—Labor Day.

Nov. 25 and 26—Thanksgiving and the following day.

Dec. 23 and 24—two days before Christmas.

Dec. 30 and 31—two days before New Year's.

Radio Frequency Noise Survey Made For NASA

(Continued from Page 1)

A DC-3 aircraft leased from the University of California was equipped with shielded parametric amplifiers and directional antennas for the aerial surveys. A mobile laboratory with special receiving antennas and an erectable tower was used in the ground surveys for correlation with the airborne measurements.

The Akron survey included aircraft flights at 2,500 feet over five flight paths, each divided into urban, suburban, and rural segments. Time was recorded by a time-pulse generator and aerial photos were made at 10 second intervals to aid in the correlation. Ground measurements were made at five locations with antennas above rooftop level.

A. H. Mills, design specialist who served as program leader, said wideband receivers were used to measure radio frequency interference at about 300 megahertz and 1 and 3 gigahertz levels during heavy traffic periods, at midday, and during evening hours.

Mills said adequate data was not previously available to characterize the indigenous electromagnetic noise environment of a city.

"Auto ignition systems, high-voltage transmission lines, electrical power generation stations, and electrical appliances and machinery all add to such interference," he said.

"Such 'noise' affects radiated power of transmitters, the gain of receiving antennas, and sensitivity of receivers."

Chazotte said initial data reduction from the Akron study by NASA-Lewis personnel indicated that the average noise level at 300 megahertz in rural areas was 11 decibels less than in urban areas and 8 decibels less than in suburban areas. Variations in noise level during different times of the day had not been found to be significant, however.

Wabash Launching Slated Saturday

The Wabash, the fifth ship of its class to be built at the Quincy Shipbuilding Division, will be launched Saturday (Feb. 6). The Navy fleet replenishment oiler was completed in record time, 12 months from keel to christening and nine months less than the construction time for the Wichita, the first of her class.

The Wabash is a versatile new class of ship used to replenish other vessels while operating at sea. She will use advanced transfer-at-sea equipment and techniques including helicopters which will operate from a stern platform.

The Wabash measures 659 feet, displaces 37,360 tons fully loaded and will carry a crew of 27 officers and 362 enlisted personnel.

Named after the city and river in Indiana, the Wabash is the fourth Navy ship to bear that proud name.

The first was a wooden steam frigate built by the Philadelphia Navy Yard in 1856. In contrast to the newest Wabash, it measured 262 feet and displaced 4,808 tons.

The original Wabash broke up William Walker's expedition against Nicaragua, helped establish stronger U.S. relations with the Sultan of Turkey and was a powerful factor in capturing Confederate forts and blockading the southeastern coast during the Civil War.

The second Wabash was a cargo ship built in Germany in 1900 and transferred to the U.S. Navy in February, 1918 for World War I use. She was decommissioned in April, 1919.

The third Wabash was a gasoline tanker built in Tacoma, Wash. in 1942-43. She participated in a number of major invasions in the Pacific during World War II. At war's end, the ship was transferred to the Army Transportation Corps, manned by a Japanese crew and, after a return to the U.S. Navy, carried jet fuel to the U.N. Forces during the Korean conflict.

The latest Wabash was constructed in a modern building basin instead of upon the traditional sliding way. In basins, ships can be constructed faster, more efficiently and at less cost. When the ship is ready, the basin is flooded and the water lifts the ship off her building blocks.

* * *

By a coincidence of history, two ships being built at the Quincy yard are linked together: the Wabash and the submarine tender Dixon, named after Confederate Army Lt. George Dixon.

Dixon commanded the submarine Hunley in the harbor of Charleston, S.C. in history's first successful underwater warship attack. His prime target was the frigate Wabash. Strong currents prevented the hand-cranked submarine from reaching its goal so Dixon attacked and sank the Houstonic instead.

Quality Conference Planned at Pomona

Theme for the Fourteenth Annual ASQC/Cal Poly, Pomona, Calif., Quality Control Conference Feb. 27 will be "What's Happening in Quality Technology."

L. I. Medlock, director of quality assurance at Convair Aerospace Division's San Diego operation, will be the keynote speaker. Medlock is ASQC national president.

R. B. Young, vice president-engineering and quality assurance at Aerojet-General Corporation, is luncheon speaker.

Six technical sessions will cover quality management, consumer products, inspections, reliability applications, special technology and non-destructive testing.

Conference fees are $10 in advance (by Feb. 22) or $12 at door. Included are luncheon, technical sessions and conference papers. For information contact K. W. Strowig, ext. 8437, or D. R. Brothers, ext. 8214.

Executives of NMA Gather in Dayton

Dennis A. Chesshir, western area vice president of National Management Association, attended an NMA executive committee meeting in Dayton last week.

Chesshir is supervisor of industrial security at Fort Worth operation. Wes E. Magnuson, current president of NMA, is with the San Diego operation.

SEE AND SAY—Two Mid-Continent Telephone Corp. secretaries try out new VISTAPHONE picture telephone installation at company's Hudson, Ohio headquarters. It is first installation of new "sight and sound" telephone system for an independent telephone company.

VISTAPHONE System Serves Mid-Continent

The first installation of Stromberg-Carlson VISTAPHONE picture telephones for an independent telephone company is now in operation. It is also the first installation to use a new wide-band switching matrix in conjunction with a CROSSREED electronic switching system.

The installation serves the Mid-Continent Telephone Corp. at its Hudson, Ohio headquarters. Two VISTAPHONE picture telephones are installed in the main reception of the year-old headquarters to permit demonstrations of the sight and sound telephone system. Other units are installed in offices of Mid-Continent executives.

A "Vistaswitch" switching matrix, capable of handling the video signals, was added to the CROSSREED EPABX system serving the building. This unit is an optional item which can be added to the CROSSREED system to handle video and very high speed data signal transmission.

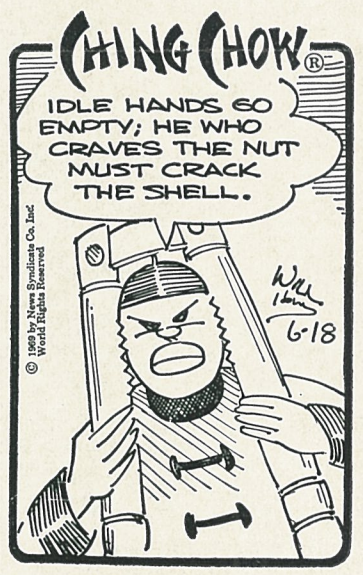
It is the third time in the past 16 months that Mid-Continent has taken an industry lead by installing the most advanced products from Stromberg-Carlson. The company, the nation's fifth-largest independent telephone company, was the first to receive a CROSSREED EPABX system to serve its headquarters office. In December of 1970 a Mid-Continent operating company, Western Reserve Telephone, was the first to put a CROSSREED central office switching system into commercial service in nearby Hinckley, Ohio.

The first experimental installation of the VISTAPHONE system is still in service at the National Technical Institute for the Deaf at the Rochester Institute of Technology. It was installed just over a year ago to provide the first known telephone installation for the deaf.

Microelectronics Lab Exhibit in Display

An exhibit featuring Pomona operation's microelectronics laboratory capabilities is on display at California State College at Los Angeles. The month-long display began Jan. 15.

Located on ground floor of school's engineering building, the exhibit has attracted wide attention from students attending both day and evening classes. The display window is nine feet wide, six feet high and four feet deep. Presented are hybrid circuit manufacture employing thick and thin film processes and various applications of microelectronic devices.



Quality Assurance Reps in Field Kept Informed by Tape Recordings

A new technique is being used at Pomona operation to improve communications between quality assurance representatives at scattered locations throughout the U.S. and in-plant personnel of the supplier control group headed by J. C. Schulz.

"Cassette tape recordings of in-plant meetings are being sent to field supervisors so that they are cognizant of our activities," A. C. Villere, manager of purchased material quality, said. "We have been using this technique for a couple of months since getting the idea at a Saturday management seminar at Cal Tech in Pasadena."

Two types of meetings are being recorded. They are supervisory meetings taped only for supervisors in the field, and general quality assurance representative (QAR) meetings held in Los Angeles area. Tapes of the QAR meetings are sent to field supervisors for them to play for QARs in east and midwest areas.

"Condensed written minutes are still required for follow-up on open action items and for our files," Villere explained. "However, every meeting has lots of back-up dialogue as to why things are being done in a certain way and company and quality assurance philosophies are presented which the minutes can not adequately describe. Our field people need to know these facts, and we feel this new technique builds morale and helps all to do a better job."

Quality assurance field people can listen to the easy-to-handle recordings while they drive to work or between supplier firms in much the same manner they would listen to a car radio.

"We are now attempting to develop this communications technique a step further by preparing certain tapes for the QAR's direct usage," Villere continued. "These tapes cover source control plans, surveys, supplier quality problem reporting, operating instructions, QAR motivational-type messages, and other areas of significant importance to the QARs."

With funds not available for training seminars, Villere feels that utilization of cassette tapes is an excellent way to still accomplish the training program. A tape route slip shows sequence of routing and deadlines for forwarding to next QAR on list.

"As we gain more experience in use of this technique, we plan to ask field QARs to tape their special meetings with suppliers so that we here in the plant may better understand the problems involved," Villere said.

TAPED—Supplier control quality assurance group at Pomona is using cassette tape recorders to improve communications between plant and field personnel. Joanne Kowalik helps A. G. Violet record message for QARs scattered throughout U.S.

System of Data Exchange Saves Time and Money

Jack Williams, Pomona group engineer in engineering department's components, specifications and procedures section, has been elected to a two-year term on the 15-man Contractor's Advisory Board of the Intra-agency Data Exchange Program (IDEP).

IDEP is operated by the Navy, Army, Air Force and NASA to provide for exchange of test data on parts and components having repeat use under various government contracts.

In his capacity, Williams has responsibility for coordinating Contractor's Advisory Board activities with Naval Fleet Missile Systems Analysis and Evaluation Group in Corona, Calif. This is the Navy IDEP office. The Army/NASA office is at Redstone Arsenal, Huntsville, Ala., and the Air Force office is at the AF Space Systems Division, El Segundo.

Pomona operation of Electro Dynamic Division is one of about 300 subscribers to this program. IDEP aims to save time and money for subscribing contractors and government agencies by avoiding duplication of tests already made. Side benefits include increased confidence level by selecting parts of known reliability, more realistic bid proposals, and elimination of the need for testing parts that have been found by other contractors to be inadequate for a given purpose.

In many cases, IDEP test reports make it possible for tests to be shortened or guided in sequence, method, or sample size from modes demonstrated by other users. Reports are maintained on approximately 30,000 parts and components, and these are continuously updated by cooperating IDEP participants for the benefit of all.

Williams feels there is need for greater understanding and use of IDEP services among Pomona operation departments and individuals. He suggests that anyone responsible for specifying components in the proposal stage or at the start of a new or revised program check with engineering's components, specifications and procurement selection to verify existence of applicable test reports.

Log Book Entries

Service Emblems

Service emblems due during the month of January.

CONVAIR

THIRTY-FIVE YEAR: Dept. 027, Harry G. Rote; 031, Harold D. Hershey.

THIRTY YEAR: Dept. 001, C. E. Schultz; 002, H. B. McIntosh; 015, C. L. Good, E. Krupicka; 027, C. W. Meinsen; 031, Ola W. Brotherton, C. P. Glover, M. L. Salefski; 045, C. E. Caffey, G. R. Mayfield, E. L. Risner; 046, L. W. Sage; 049, C. R. Addy; 146, A. L. Sack; 149, D. B. Seaburg; 191, Dorothy M. Luscomb; 202, C. J. Kruk; 204, R. T. Bauman; 205, T. B. Rogers; 224, J. A. McSparron; 225, L. Nigro; 228, M. Frankel, R. H. Johnson, R. C. Pfister; 250, E. C. Cheney, J. N. Strong; 400, E. N. Goad, E. G. Gray, Q. S. Reid, N. Sainz; 401, W. H. Glenn, R. W. Verdon; 420, R. W. Patterson; 491, C. L. Holland; 507, D. T. Ostenso, P. A. Wuthnow; 509, H. P. Williams; 511, C. J. Bolin; 533, F. L. Beale; 566, E. L. Smith; 572, R. L. Benson; 574, C. G. Skeen; 598, C. F. Osberg; 731, R. L. Weide; 761, L. E. Turner; 780, A. E. Bowers; 810, T. P. Mellen; 840, C. D. Knadle; 860, R. A. Dirkschneider; 956, L. W. Kerner; 985, M. G. Rustin Jr.

TWENTY-FIVE YEAR: Dept. 045, F. A. Chase; 046, G. F. Hogan; 148, W. J. Seitz; 149, R. R. Serrano; 223, J. P. Erpenbeck; 229, Hazel S. Ott; 250, E. M. Kiener; 400, G. W. Durkee; 759, E. Caliendo; 761, Mary M. Smith.

TWENTY YEAR: Dept. 001, D. E. Fuller; 002, W. E. McBride; 015, H. B. Adamson, R. C. Morales; 027, E. L. Holtwick; 046, A. Capossere, A. Enriquez, E. P. Osgood; 057, H. E. Hainley; 101, D. Rodriguez; 103, H. F. Mohrlock Jr.; 105, Esther B. Barksdale; 110, S. Harris Jr.; 130, Jeanette B. George; 142, H. E. Kessler; 143, K. L. Beeman, J. W. King; 149, W. R. Hackett; 195, Paul R. Conner; 202, S. Catalano; 204, W. L. Rix; 205, R. K. Johnson; 226, Julia E. Olson; 229, R. B. Bailey; 250, V. J. Farrell. T. A. Hall, J. T. McElroy, H. A. Means, E. E. Smith, J. P. Whiddon, G. A. Young; 400, C. Belden Jr., T. T. Bronikowski, A. D. Poling; 401, B. J. Banke, W. Porter; 451, J. J. Quarles; 460, Catherine R. Law, Phyllis K. Stevens; 491, G. D. Peddie; 511, D. F. Conklin; 524, Doris J. Jackson; 545, J. C. Lievens; 565, J. W. Currie; 566, L. E. Goodale; 732, F. Reed; 761, W. N. Beers, Constant H. LeClerc, R. R. Ponchetti; 780, N. S. Cole, R. M. Cooper, J. A. Moore; 840, Helen M. Oliver; 842, Margarita Lobato; 967, B. J. Arendt; 985, W. G. Whitted.

FIFTEEN YEAR: Dept. 001, H. G. Mondy; 015, G. C. Archbold, A. T. DeCasas; 027, R. G. Castro, D. W. Hayes; 046, Jennie B. Kucera, J. M. Walcutt; 058, J. A. Myrann; 100, Edith Trapp; 130, Barbara L. Griffin, P. M. Houtkooper, Elaine S. Paras, Lois C. Woline; 131, C. D. Carver, F. H. Fogg; 142, J. D. Stevens; R. G. Dege, F. L. Estevane, G. E. Tuggey; 145, J. B. Richmond; 148, R. E. Barnier, E. McLeod; 149, Ann H. Anzalone, J. R. Colbert, Bertha C. Edmondson; 191, J. A. Dematteis, Adelaide M. Jones, Frances C. Novak; 193, J. R. Paulson; 195, E. R. Minton; 202, R. B. Ponse; 204, J. W. Miller; 223, D. A. Leever; 229, R. E. Cotner, Gladys L. Meskimen; 250, M. W. Bemus, M. Cox, G. Dunlavey, V. W. Siebert, G. L. Temple; 400, W. H. Petersen; 401, Candelaria Guthrie, R. J. Surber, F. L. Warner; 403, G. M. Esslinger; 420, T. C. Smith; 508, S. Pountney; 518, Genevieve G. Sanders; 545, D. P. Hyland; 574, J. H. Azeka; 575, L. F. Miller; 583, J. M. DeBevoise; 588, M. L. French, T. F. Reed; 731, J. L. Vincent; 744, D. F. Sharp, 756; H. S. Winter; 780, A. M. Fader, Margaret B. Newman, Arda H. Payne; 810, L. D. Cousins; 840, Mary M. LaCoste; 954, B. McGranahan; 956, H. C. Yoakum; 966, Joan E. Sherley; 967, L. R. Willett; 979, F. M. Russell; 989, J. C. Rock.

TEN YEAR: Dept. 001, J. K. Bryan; 002, R. Fountain; 046, Herminia M. Hernandez, Mary B. Miller; 101, Shirley J. Liles; 104, Marilyn I. Potterton; 143, J. C. Pfeil, R. L. Yauney; 195, E. B. Smith; 221, Lynn A. Smith; 401, P. P. Balistreri, J. A. Hernandez; 407, C. R. Moffitt; 420, H. T. Claudy; 460, F. J. Witek; 566, L. R. Fowler; 583, W. A. Pence Jr.; 810, E. B. Roberts; 860, Lorna H. Pohl; 954, Darlene J. Furnish, Julia E. Linehan; 962, C. P. Hicks Jr.; 979, S. K. Baker Jr., A. J. Boyd; 986, R. E. Seiley; 988, R. J. Voth; 989, Phyllis I. Clifford.

ELECTRO DYNAMIC

TWENTY YEAR: Dept. 105, Verna R. Burton, W. J. Farrar; 423, C. L. Ross, Nita W. Sylvester; 565, Marion R. Fontenot; 566, T. R. Daugherty; 617, D. L. Hill; 712, J. H. deKerguelen.

FIFTEEN YEAR: Dept. 104, J. B. Klerekoper; 426, J. H. Geisler; 427, E. C. Frankoski; 923, R. W. Edge.

TEN YEAR: Dept. 638, J. C. Herman.

Awards

CONVAIR

Employe Suggestion awards approved for week ending Jan. 15:

B. J. Adams, Dept. 979-3, $15; J. B. Anderson, 149-6, $15; D. M. Avila, 046-0, $34.90; W. T. Black, 985-4, $15; K. N. Brackin, 979-3, $15; R. L. Cowan, 002-0, $15; G. A. Gibbons, 144-1, $15; T. F. Gurbacki, 250-3, $59.10; M. D. Herndon, 001-0, $22.50 (two awards); I. D. Hoffer, 228-5, $17.30; R. L. Kellogg, 228-4, $50; J. Kolody, 001-0, $31.50; W. W. Lacy, 149-3, $20; J. W. Nisson Jr., 001-0, $35.10; A. E. Sanchez, 001-0, $26.60; P. E. See, 001-0, $31.50; G. Seyler, 015-0, $11.35; S. Smolka, 015-0, $11.35; B. D. Snow, 420-2, $15; B. J. Tanonis, 565-0, $15; D. S. Thibault, 015-0, $15; M. H. Thrasher, 001-0, $34.10 (two awards); A. N. Wilson, 585-0, $15; L. H. Wilson, 027-0, $30.20 (two awards).

Employe Suggestion awards approved for week ending Jan. 22:

B. S. Bailey, Dept. 001-0, $21.80; R. T. Collins, 250-2, $15; L. Cruz, 046-0, $60.20; E. G. Gibson, 148-4, $22.10; F. A. Gordon Jr., 045-0, $32; R. W. Harris Jr., 780-2, $25; R. A. Johnston, 149-6, $15; K. M. Little, 524-5, $15; F. Newton, 227-1, $21.80; W. C. Pahl, 049-0, $15; H. J. Quick, 142-1, $44.90; M. G. Robinson, 150-0, $16.70; P. E. See, 001-0, $15; A. L. Spears, 149-4, $88.50.

Papers Presented

CONVAIR

GRIGGS—M., Dept. 596. "Remote sensing of air pollution in urban atmospheres." Conference of the International Union of Air Pollution Prevention Associations, Washington, D.C., Dec. 6-11.

YOSHIHARA—H., Dept. 570. "Numerical Calculations of Planar Transonic Flows." Symposium on Environmental Effects of Thermal Discharges, New York, New York, Nov. 29-Dec. 3.

"Cost Reducers"

CONVAIR

10-award pins—L. H. Wilson, Dept. 027-0; E. J. Bourgeois, 149-0; W. W. Lacy, 149-3; M. H. Thrasher, 001-0.

5-award pins—P. W. Bechthold, 400-2; H. E. O'Neil, 250-1; J. F. Batchelder, 046-0; S. Persley, 027-0; G. R. Simpson, 027-0; C. L. Holland, 491-0; N. Chaudoin, 733-0; G. R. McCambridge, 001-0; W. T. Black, 985-4; H. B. Day, 518-0; M. D. Herndon, 001-0.

Rider-Driver

CONVAIR

RIDE WANTED — From east end of Poway, near Deelan Lane, to Kearny Mesa plant, 8 a.m. to 5 p.m. shift. Call Gerri Radiske, ext. 2469 KM, or home 748-1767.

Retirements

CONVAIR

BRIDGES—Ted A., Dept. 204-2. Seniority date June 4, 1947, retired Jan. 8.

CUSTENBORDER — Ernest F., Dept. 565-1. Seniority date Nov. 3, 1943, retired Jan. 8.

HIGGINS—Bernie M., Dept. 226-1. Seniority date Sept. 11, 1941, retired Jan. 8.

HOBART—Donald L., Dept. 532-0. Seniority date Nov. 27, 1950, retired Jan. 15.

INGOLD—Edwin D., Dept. 031-0. Seniority date Sept. 7, 1949, retired Jan. 8.

KELLY — Margaret A., Dept. 780-1. Seniority date July 2, 1956, retired Jan. 12.

LAMB—Elmer E., Dept. 226-1. Seniority date July 8, 1942, retired Jan. 8.

LAMB—Neil W., Dept. 105. Seniority date Aug. 3, 1943, retired Jan. 15.

MONTANO—Andy T., Dept. 401-5. Seniority date June 21, 1951, retired Jan. 9.

MOORE—Bruce H., Dept. 579-1. Seniority date July 16, 1957, retired Dec. 29.

PENN—Perdeta W., Dept. 840-0. Seniority date April 12, 1957, retired Jan. 15.

POLEN—Byron A., Dept. 131-1. Seniority date June 5, 1956, retired Jan. 15.

ROSS—Gertrude H., Dept. 170-1. Seniority date April 30, 1951, retired Dec. 30, 1970.

SUMMERS—William B., Dept. 566-2. Seniority date Sept. 29, 1936, retired Jan. 8.

TUTTLE—Larned L., Dept. 214-0. Seniority date Feb. 12, 1936, retired Jan. 8.

UMLAUF—Edward, Dept. 031-0. Seniority date Feb. 16, 1956, retired Nov. 30, 1970.

WOODWARD—Robert D., Dept. 140-2. Seniority date Dec. 27, 1956, retired Jan. 15.

Personals

CONVAIR

Fran Henninger wishes to express appreciation for the thoughtfulness shown at the recent loss of her husband, Harry.

* * *

Your kind expression of sympathy is gratefully acknowledged and deeply appreciated by the family of Ada Marie Shipman, Dept. 840.

* * *

The family of E. A. G. "Bill" Ganoe wishes to thank most sincerely Convair Employes and Convair tooling friends for the lovely flowers sent in remembrance of our husband and father who passed away Jan. 13, 1971.

* * *

I would like to give my thanks to all the Convair employes for their thoughtfulness in sending the flowers. They were very beautiful.

Mrs. Paul Cox

Deaths

CONVAIR

GORDON—Frank A. Jr., Dept. 045-0, died Jan. 13; survivors include his wife, Esther, and two daughters, Mrs. Barbara Marchman and Mrs. Joan Thornburg.

PATTERSON—John E., Dept. 146-3, died Jan. 18; survivors include his wife, Alice, and a daughter, Anna.

Class in Handling Boats Is Under Way

Registration is still open for a 13-week boat handling class covering safety afloat, use of compass and off-shore piloting being conducted by the U. S. Power Squadron.

The course started Feb. 2 and will be held each Tuesday evening from 7 to 9:30 p.m. in CRA Clubhouse. For information call Richard Bailey, ext. 1083 KM.

General Dynamics News

Published by General Dynamics Corporation, One Rockefeller Plaza, New York, N. Y. 10020.

Convair Division editorial offices: Kearny Mesa plant, Bldg. 8, Mail Zone 104-61, P.O. Box 1128, San Diego, Calif. 92112. Phone 277-8900, ext. 3322.

Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P. O. Box 1950, San Diego 92112.

Salvage Schedule

Next employes sales day at the Convair salvage yard, Lindbergh Field plant, will be Saturday, Feb. 6. Hours are from 8 a.m. until noon. Entrance is by badge. Children and pets are not allowed inside the yard. Also not permitted are canvas or open-toed shoes and bare feet.

Loper Named DC-10 Manager

Harold G. Loper has been named DC-10 resident manager of Douglas Aircraft Company operations at Convair Aerospace-SD.

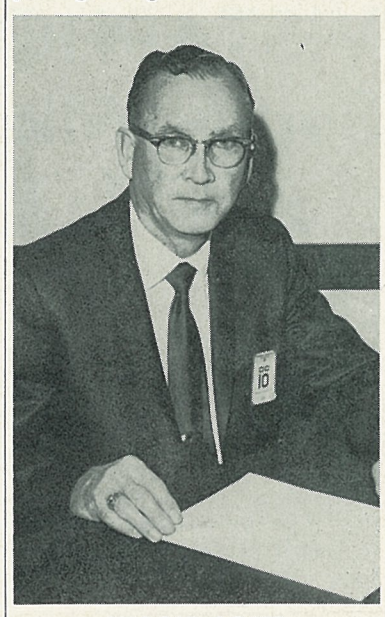
In his new position Loper will be in charge of all Douglas operations including engineering, tooling and manufacturing in the San Diego plant.

Since January, 1970 when he came to San Diego as Douglas manufacturing representative at Convair Aerospace, Loper has been assigned to the DC-10 major subcontract manufacturing efforts.

Prior to being assigned to the DC-10 project he served for three years as project superintendent for the DC-8 in Long Beach.

In his twenty-five years at Douglas, he has worked on all but one Douglas-built airplanes including the DC-7, DC-9, C-124, and C-133.

Loper began his aircraft career in 1937 at Midwestern Aviation in Indiana as a mechanic before joining Douglas.



HAROLD LOPER

Mgt. Assn. to Sponsor Scholarships Again

Sons and daughters of Convair Aerospace-SD employes who will graduate from high school this year and are in the top third of their classes are eligible to compete for 1971 Convair Management Association scholarships.

Six $500 scholarships to meet freshman year college expenses will be awarded in June.

Applications should be submitted through the students school counselor and must be received by the scholarship committee by March 31.

Finalists will be selected by a scholarship committee headed by Wayne Turner of Dept. 130-3 and includes Art Braidic, 222; Joe Bowers, 140-2; Stan Krebs, 015-0; Harvey Seibert, 954-0; and Lois Tenwolde, 130-6.

Hoop Teams in Ties Midway in Season

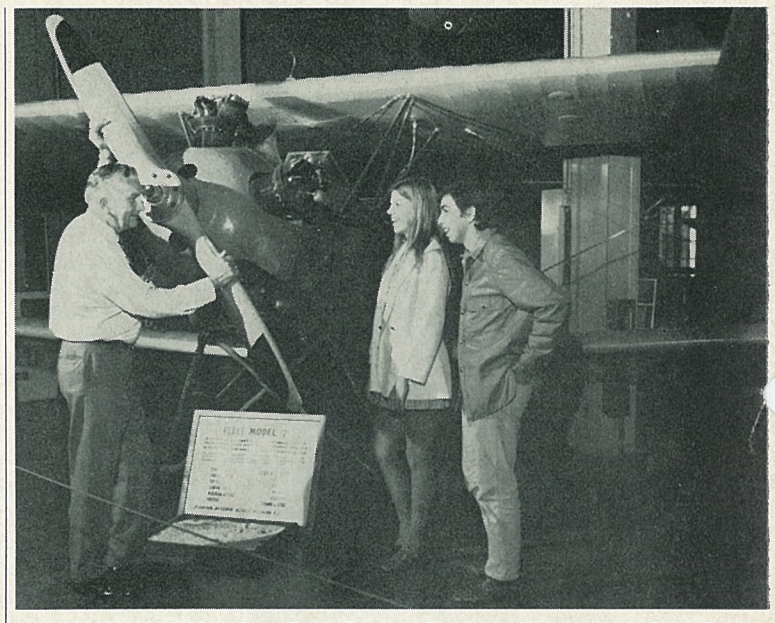
Four teams in two CRA plant basketball leagues ended the first half of the season in ties.

Electro Dynamic and Underbrush were tied with four wins and one loss in the Wednesday fast-break league. DatagraphiX Material and Potluck both had 4-1 records in the Thursday slow-break league. Games to break the first-half ties will be scheduled at the end of the regular season.

Leading after five games of a nine-game schedule in the Sunday fast-break league were the Boogaloos with four wins and a loss.

Cyclists Will Tour Point Loma Area

Point Loma "Lu Lu," a 12-mile ride, has been scheduled by CRA Bicycle Club starting at 2 p.m., Sunday, Feb. 7. Riders will meet at the Bali Hai on Shelter Island. Ride leader is Bob Williams, ext. 1883 LF or home 222-3560.



MUSEUM MUSING—Col. Owen Clarke, director of San Diego Aero-Space Museum, shows San Diego High School students Louise Phinney and Jon Mourning how early aviators spun prop to start engine of Fleet Model 7. Several aircraft and other artifacts from Convair Aerospace-SD predecessor firms are included in museum collection.

Rich Heritage

Aero-Space Museum Packed With Memories For Convair

Convair Aerospace Division's heritage is depicted in a variety of exhibits in the San Diego Aero-Space Museum in Balboa Park.

Division-related exhibits range from early PT-3 and Fleet 7 aircraft to models of 880 and 990 Convair liners, a lunar excursion module, and an Atlas manned space station.

A history of the division and its predecessor firms is told in photographs dating from the founding of Consolidated Aircraft Co. to production of the Pogo and Sea Dart.

The museum is open without charge from 10 a.m. to 4:30 p.m. Tuesdays through Sundays. It also houses the International Aero-Space Hall of Fame and the Prudden Historical Library with a collection of 5,000 volumes on early aviation dating from 1850 to 1950.

Col. Owen F. Clarke, USAF (ret.), executive director of the Aero-Space Museum, flew the PT-3 "Husky" to San Diego from Little Rock, Ark., in 1969 for permanent display—41 years after its initial delivery to the Army Air Corps.

Maj. Reuben Fleet, USA (ret.), founder of Consolidated Aircraft Co., was taken for a half-hour ride in the open-cockpit plane by Clarke before the vintage craft was moved into the museum.

The Fleet 7 was produced in 1929 in Buffalo, N.Y., and is on loan to the museum from Smithsonian Institution.

Other division-related exhibits include an experimental LALO ducted-fan vehicle, an Atlas missile camera capsule used to study engine "staging" during early launches, and copies of old Consolidator newspapers.

Three "Bee" aircraft built by Bee Aviation Associates, founded by Bill Chana of Convair Aerospace-SD's Dept. 102-0 and Ken Coward of Dept. 583-0, are among other exhibits seen by an average of 40,000 visitors to the museum each month. The "Wee Bee," the world's smallest plane, was flown in a prone position with the pilot strapped to the body.

A model of a plane similar to Charles Lindbergh's "Spirit of St. Louis" built by Felix Roy, a Dept. 731-0 machinist, flies continuously around a tethering post in the museum — and provides double duty by keeping the air circulating in the area of the museum where it is on display.

Col. Clarke hopes the museum can be relocated to the Ford Building in the future to triple its exhibit space. It has been given many exhibits — including Convair Sea Dart and Delta Dagger aircraft—which it is unable to exhibit in its present quarters.

Cushman Dow, Convair Aerospace-SD legal counsel, and Chana are among museum directors. James Mason, director of communication for Convair Aerospace-SD, is a director of the related International Aero-Space Hall of Fame.

Karel J. "Charlie" Bossart, "father of the Atlas" who now serves as a consultant for the division, and Fleet are among aviation and space pioneers honored in the Hall of Fame.

Retirement Data To Be Distributed

Convair Aerospace-SD and Electro Dynamic-SD employes will be receiving annual retirement statements in the near future.

A new improved type of statement will be issued for the first time to all Convair Aerospace-SD and hourly Electro Dynamic-SD employes. Electro Dynamic employes who are or have been members of the salaried plan will receive the previously issued type of statement. Two separate statements have been issued for Convair Aerospace-SD people in previous years.

Paul Allgire, chief of employe benefits for Convair Aerospace-SD, said the redesigned statement will provide more comprehensive and easier to read information on contributions and benefits than has been provided in previous years.

Contributions to both the present retirement plan and a plan in effect prior to Oct. 1, 1956, will be shown. Benefits will be specified for 1970 and previous years with projections for the total retirement benefit for each employe at age 65.

Hourly employes with projected actual earned benefits at age 65 that are lower than the minimum benefit also will have the minimum benefit shown for the first time.

MILESTONE — Harold D. Hershey, Convair Aerospace-SD leadman for F-111 fatigue testing, recently received 35-year service pin. Hershey has been in experimental for most of Convair career.

CHILDREN'S AID—Electro Dynamic-SD's test equipment group (Dept. 638) have given more than $1,200 to Children's Hospital rather than exchange Christmas cards during past 12 years. Watching 13-year-old patient Claude Sherrill play pool after presenting recent $168 check from group are Dennis Kuzura and Annie Fitzhugh.

'Performance Plus' Program Area Representatives Named

Performance Plus program area representatives have been named for all Convair Aerospace - SD plant areas. Each also will have sub-area monitors to assist with the program, which is aimed at improving appearance, orderliness, and discipline.

Area representatives, listed by facility, are:

Lindbergh Field — Dan Applegate, Nick Keough, Frank Blair, Bill Stanley, Frank Robbins, Ernie Damarus, Bob Daly, Gene Fox, and Lyle Wood.

AF Plant 19—Daly, Stanley, Blair, Damarus, and Fox.

Kearny Mesa—Paul Green, Frank Thompson, Jay Farrar, Stan Sharp, Paul Allgire, Daly, Blair, Wood, and Stanley.

Harbor Drive facility—Ed Strong, Bill McCarthy, and Damarus.

Sycamore test site—Phil Gardner.

Western Test Range — Roger Lynch.

Eastern Test Range — O. H. Reed.

Bill Chana, who heads up the program for the San Diego operation, said "checklist calendars" are being prepared for distribution to all supervisors.

The calendars will highlight housekeeping, idle time, machines, tools and equipment, work rules, cost avoidance, manpower development, employe utilization, planning, scheduling, communications, quality, safety, coaching, attendance, cost savings, work load, use of support functions, paperwork, vacations and management.

Bill Wise, manager of industrial engineering, has been coordinating meetings for the Performance Plus area representatives at 6:45 a.m. each weekday for a review of progress and discussion of problems.

Frank Blair, manager of fabrication, said more than 100 tons of surplus and scrap material has been removed from buildings and storage areas at Lindbergh Field.

"We're looking for more efficient operations," Blair commented. "We believe the environment in which people work has a significant bearing on their efficiency and the quality of the work they produce."

Among functions available to answer questions and provide assistance are the Performance Plus office, ext. 2650 LF; maintenance service and repairs, ext. 2025 LF, and facilities disposition, ext. 2077 LF.

CHECKLIST CALENDAR—Looking over advance copy of Performance Plus program checklist calendar to be distributed to Convair Aerospace-SD supervisors are Lyman Josephs, right, vice president and general manager, and Bill Chana, who is directing Performance Plus program.

CRA Calendar

(For information on CRA activities call CRA headquarters, ext. 1111 KM. Deadline for next issue of GD/NEWS is Feb. 9. Call ext. 1071 LF or 3322 KM. All meetings are held in CRA Clubhouse unless otherwise noted.)

★ ★ ★

BADMINTON — Play 7-10 p.m., Mondays, Federal Bldg., Balboa Park.

BICYCLE CLUB—Call Bob Williams, ext. 1148 LF for information.

BONAIR FLYERS—Meet 7:30 p.m., Feb. 4.

BRIDGE — Duplicate bridge sessions, 7:30 p.m. each Friday.

CAMERA CLUB—Meeting 7:30 p.m. Feb. 7.

CERAMICS—Meet 9 a.m.-noon and 7-10 p.m., Tuesdays and Thursdays.

CHORUS—Rehearsals 7:30 p.m. each Monday.

COINEERS—Meeting 7:30 p.m., Feb. 8.

COUNTRY & WESTERN MUSIC — Meet 7:30 p.m. Thursdays.

DELTA DIVERS—Meet 7:30 p.m. Feb. 10.

FENCING—Workouts and instruction 7:30 p.m. each Friday. YWCA, 10th & C Sts.

FISHING CLUB—Potluck 6:30 p.m., meeting 7:30, Feb. 16, Gillespie Field Clubhouse.

GARDEN CLUB—Meeting 7:30 p.m. tonight (Feb. 3), Floral Association Bldg., Balboa Park.

GOLF—Cottonwood tourney Feb. 6-7.

HEALTH CLUB—Open 9:30 a.m.-10 p.m., Monday through Thursday; 9:30 a.m.-9 p.m., Fridays; 9 a.m.-noon, Saturdays; "women only" weekdays, 9:30-11 a.m.

HI-FI MUSIC — Open house 8 p.m. Feb. 9. Business meeting preceding at 7:30.

ICE SKATING—GD family skate night 6:15-7:45 p.m. each Thursday, House of Ice, Interstate 8 and Lake Murray Blvd. Flat rate fee $1 (includes skates).

MINIATURE RAILROAD—Work sessions Saturdays and Sundays, CRA Missile Park.

MODEL HO RAILROAD—Work sessions 7 p.m., each Tuesday, CRA Missile Park.

PISTOL CLUB—Shoot 9:15 a.m. Feb. 14, Police Pistol Range.

RADIO CLUB — Meeting 7:30 p.m., Feb. 4.

RETIREES — Luncheon meeting 11:30 a.m., Feb. 9.

RIDING CLUB — Meeting 7:30 p.m., Feb. 10.

RIFLE CLUB—Senior shoots 7 p.m., Feb. 10. Junior shoot 9 a.m. Feb. 6. Gillespie Field Range.

ROCKHOUNDS — Slide program 7:30 p.m., Feb. 10.

SAILING—Registration still open for small boat handling class, Tuesdays, 7 p.m.

SCULPTURE—Workshop sessions 7:30 p.m. Mondays.

SPECIAL EVENTS—GD family Disneyland night, 8:30 p.m.-1:30 a.m., March 27.

SPORTS CAR CLUB — Meeting 7:30 p.m., Feb. 10.

SQUARE CLUB — Dance 8-10 p.m. each Thursday.

STAMP CLUB — Meeting 7:30 p.m. Feb. 11.

SWIMMING—Family swim night 7-9 p.m., Feb. 20, Mission Beach Plunge. Tickets at employe benefits, 5 cents.

TOASTMASTERS—Convair Toastmasters meet 4:30 p.m. each Wednesday. Dynamic Toastmasters meet 5:30 p.m. Thursdays.

TRAILERS—Indio Date festival weekend, Feb. 12-15.

WOMENS GOLF—River Valley tourney, 8:30 a.m. tee-off, Feb. 13.

Dorothy Johnston's 68 Low For Golfers

Dorothy Johnston shot a low net 68 to take first place trophy in the January Women's Golf Club tourney at Carlton Oaks Country Club.

Agnes Sliger was runner up with net 80. Mable Humphries took the merchandise prize for fewest putts.

Linkswomen will tee-off at 8:30 a.m. Feb. 13 at River Valley.

OEHLER ELECTED

Al Oehler was elected president of the CRA Camera Club at the Jan. 17 meeting, Sharon Williams vice president and Leo Spring, secretary-treasurer.

RETIREES PLAN FEB. 9 LUNCHEON

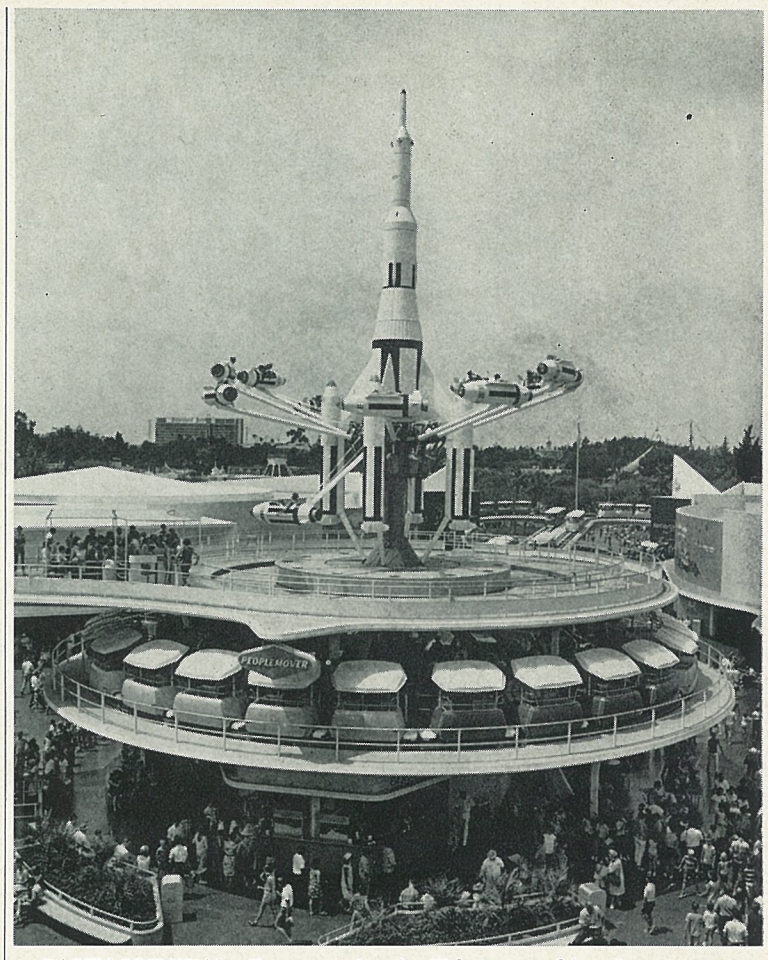
More than 75 General Dynamics retirees are expected to attend a luncheon meeting at 11:30 a.m. Tuesday (Feb. 9) in CRA Clubhouse auditorium.

COINEERS TO SEE CANYON MOVIE

CRA Coineers will see a film on the Grand Canyon at a meeting at 7:30 p.m. Monday (Feb. 8) in the CRA Clubhouse. A trophy will be awarded for the best exhibit on a "patriotic" theme.

REPTILES SUBJECT FOR SLIDE TALK

Dr. William T. Soldmann Jr. will present a slide program and lecture on poisonous reptiles at a meeting of CRA Rockhounds Feb. 10.



PARTY PREVIEW—Tomorrowland will be one of key interest areas for General Dynamics people at Disneyland party next month. Shown are rocket jet rides and Peoplemover that provides tour through area's major pavilions and over lagoon where special General Dynamics-built submarines operate. Tomorrowland's seven newest attractions alone cost more than $23 million.

Tickets Placed on Sale For Disneyland Night

Tickets for the Saturday night General Dynamics five-hour family party at Disneyland on March 27 went on sale today at 18 in-plant outlets. Cost is $4 each, with children under three to be admitted free.

Ron Bippert, manager of family events for the sponsoring Convair Management Association, said Disneyland will be open exclusively for General Dynamics families and guests beginning at 8:30 p.m.

Tickets, available only in advance, will cover parking and admission to all rides and attractions. Special musical entertainment also will be provided for listening and dancing at various locations.

Round-trip charter bus service from the Kearny Mesa plant also will be available at $3.75 with no charge for children under three.

Personal checks for ticket purchases or bus transportation should be made payable to Convair Management Association.

Disneyland dress regulations will be in effect—requiring all being admitted to be neatly dressed and wearing shoes. Alcoholic beverages are prohibited.

General Dynamics people can obtain a 10 per cent discount for rooms at the Disneyland Hotel and ticket sales outlets will have a supply of an "Anaheim Area Lodging Guide" listing locations and rates for other hotels and motels in the area.

Meals will be available at reduced prices at Disneyland's Plaza Inn, Blue Bayou, and French Market restaurants. Other regular food concessions also will be open.

Bippert said a limited number of tickets will be sold for the party to enable all attending to better enjoy the variety of attractions available.

"Early ticket purchases are recommended since we had a sell-out last year," he said.

Following is a list of employes handling ticket sales with locations and phone numbers:

KEARNY MESA

Glenna Van Hoose, Bldg. 33, Col. E-1, ext. 2496; Betty Gossett, Bldg. 33, A-3, ext. 1861; Frances Osborne, Bldg. 5, mezz. D-4, ext. 1095; Esther Adamov, Bldg. 3, 1st floor C-8, ext. 1071; Mae Taylor, Bldg. 1, central medical, ext. 3778; Colleen Woodrum, Bldg. 26, 1st floor, A-6, ext. 1641; Mary Martin, Bldg. 8, employe benefits, ext. 3610; Inez Breeden, CRA Clubhouse, ext. 1111; Helen Spann, Bldg. 4, F-12, ext. 1131; and Maxine Emmerick, Bldg. 5, 1st floor G-9, ext. 1843.

LINDBERGH FIELD

Barbara Freeman, Bldg. 5, 2nd floor lobby, ext. 1406; Arlene Young, Bldg. 4, 1st floor D-10, ext. 438; Vonda Fusco, Bldg. 16, employe benefits, ext. 1931; Gloria Gatewood, Bldg. 8, F-4, ext. 2557; Jeannine Forbes, Bldg. 1, B-25, ext. 1303; and Millie Buffat, Bldg. 51, ED-SD industrial relations, ext. 1757.

AF PLANT 19

Dorothy Corrao, Bldg. 4, industrial relations, ext. 2217.

VANDENBERG AFB

Louise Deveny, industrial relations, 866-6292.

Travelers to Visit Indio Date Festival

Convair Travelers Trailer Club held installation of new board of control at their January meeting. Officers installed were Paul Brock, Tom Liles, Bert Rees, and Glen Williams.

Virg Marshall, club commissioner, announced the club's outing schedule through May.

Feb. 12-15, Indio Date Festival.

March 19-21, Circle H Ranch for club anniversary.

April 16-18, Elfin Forest.

May 29-31, Lazy K Rancho.

For information contact Tom Liles, ext. 2655 LF, or home 276-3521.

Whitley's Net 68 Tops January Golf

Bill Whitley fired a low net 68 and Wayne Sanger carded a low gross 76 in first flight to take top honors in the January CRA Golf Club tourney at Singing Hills Country Club.

Other flight winners included Bugs Moran net 71 and Jim Satcher gross 84 in 2nd flight. Bill Wolfe net 71 and Tex Vining gross 88—3rd flight. Chuck Giamanco net 75 and Norb Rivers gross 91—4th flight. In Calloway flight play Jim McFadden shot a net 71 and Marge Harter a 87 gross.

CRA golfers will challenge the Cottonwood course Feb. 6-7. Linksmen can still reserve starting times by calling the CRA Clubhouse, ext. 1111 KM.

Hi Fi, Music Club Plans 'Open House'

The CRA Hi Fi and Music Club has scheduled an open house at 8 p.m., Feb. 9, CRA Clubhouse, to introduce General Dynamics employes to the sound studio, equipment and workshop.

Members will demonstrate equipment used in transcribing records to tape, tape to tape, radio to tape and live recording.

HARD HAT?—Rose T. Snow, Convair Aerospace assembler on DC-10, models landing light dome.

People Mobility

Personnel Transfers Within GD

(Following are recent personnel transfers within General Dynamics. In parentheses are dates when individuals joined the company.)

FRANK MACHADO JR. (1939) from Convair Aerospace-San Diego to Electro Dynamic-San Diego as design specialist; **BERNARD L. McDERMOTT** (1958) from Convair-SD to ED-SD as senior engineer; **RONALD J. MATTERSON** (1959) from ED-Roch. to Stromberg-Carlson as senior engineering aide; **CHARLES F. McLEAN III** (1959) from Convair-SD to senior engineer, ED-SD; **PETER T. PALAMAR** (1964) from ED-Roch. to senior engineer, S-C; **THOMAS J. MAWSON** (1954) from Convair-SD to ED-SD as design specialist; **JOHN R. WOODS** (1964) from ED-Roch. to senior engineering aide, S-C; **FRANCIS J. MELANIPHY** (1967) from Convair-SD to senior engineer, ED-SD; **ROLAND A. ST. LOUIS JR.** (1964) from ED-Roch, to senior publications writer, S-C; **PETER J. MIHELICH** (1963) from Convair-SD to senior engineer, ED-SD; **RICHARD R. COLLER** (1957) from ED-Roch. to ED-SD as an engineering manager; **JAMES B. KANE** (1957) from ED-Roch. to senior engineering aide, ED-SD; **HARLOW J. MINCH** (1966) from Convair-SD to ED-SD as senior engineer; **HARRY B. ELLIS JR.** (1948) from ED-Roch. to S-C as senior product designer; **WILLIAM T. LONG** (1964) from ED-Roch. to senior engineer, ED-SD; **GEORGE D. PRINE** (1968) from ED-Roch. to ED-SD as test engineer; **ANTHONY MINNITI** (1950) from Convair-SD to senior engineer, ED-SD; **LOUIS F. MOEBUS** (1965) from Convair-SD to ED-SD as senior engineer; **ERNESTO SALINAS** (1967) from ED-Roch. to ED-SD as test engineer; **RICHARD A. REBRES** (1963) from ED-Roch. to S-C as product designer; **DONALD W. MOFFAT** (1963) from Convair-SD to senior engineer, ED-SD; **RICHARD T. MORAN** (1956) from Convair-SD to principal engineer, ED-SD.

ROBERT A. CHASEY JR. (1966) from S-C-Roch. to senior production engineer, S-C-Orlando; **CARL V. STARNES** (1960) from ED-Roch. to spare parts documentation supervisor, ED-SD; **LESLIE R. STOEBER** (1963) from ED-Roch. to ED-SD as a program manager; **JOSEPH J. GATT** (1969) from ED-Roch. to senior engineer, ED-SD; **PETER BAUER** (1968) from ED-Roch. to ED-SD as a section head; **ROBERT F. HESLIN** (1963) from ED-Roch. to senior engineer, ED-SD; **BJORN E. BJEREDE** (1968) from ED-Roch. to ED-SD as senior engineer; **PHILIP F. LO PRESTI** (1967) from ED-Roch. to principal engineer, ED-SD; **KENNETH W. BROWN** (1968) from ED-Roch. to senior engineer, ED-SD; **DONALD E. SCHAAF** (1963) from ED-Roch. to ED-SD as senior engineer; **ALEXANDER B. CHURCHILL** (1964) from ED-Roch. to ED-SD as an engineering manager; **JOSEPH STILLWATER** (1959) from ED-Roch. to section head, ED-SD; **NATHANIAL L. COHEN** (1970) from ED-Roch. to ED-SD as chief engineer; **RICHARD E. ZMICH** (1962) from ED-Roch. to principal engineer, ED-SD; **JOSEPH W. GRAFFIUS** (1963) from ED-Roch. to senior engineer, ED-SD; **CARY L. DE ARMEY** from Convair-FW to associate engineer, Convair-SD; **ALAN E. HACKER** (1966) from Corporate Headquarters to Convair-SD as manager of budgets; **BURRELL H. GARRETT** (1959) from Convair-SD to logistics program coordinator, ED-SD; **THOMAS W. PETITT** (1950) from Convair-SD to ED-SD as logistics program coordinator; **EUGENE E. HENDRICKS** (1965) from ED-Roch. to senior engineer, ED-SD; **ROLF W. LINDEN** (1968) from ED-Roch. to engineer, ED-SD; **CARL H. PETRAS** (1965) from ED-Roch. to ED-SD as senior engineer; **ARTHUR SANSOME** (1958) from Convair-SD to senior logistics program coordinator, ED-SD; **LEON RESNICK** (1965) from ED-Roch. to principal engineer, ED-SD; **EUGENE M. SMITH** (1963) from ED-Roch. to senior engineer, ED-SD.

"It has that 'wake-up flavor . . . without caffein'. . . ."

Micromation Again Featured In Magazine

Micromation, constantly the subject of articles in EDP-oriented trade journals, was again featured in a story titled "Micromation Magic" which appeared in a recent issue of Wachovia Magazine.

The Micromation Division of Wachovia Services, Inc. of Winston-Salem, N.C. recently installed a DatagraphiX 4440 Micromation Recorder to provide computer-output-microfilm services to firms in the Winston-Salem area.

Thom Wood, who wrote the Wachovia feature, says scientific and engineering theorists warned as recently as five years ago that computers would quickly outpace the ability of output equipment to record the myriad information the computers would produce.

The article indicates this has happened. Business firms throughout the nation are finding their latest generation of computers limited by the relatively slow speed of impact printers.

Output from computers used in business and industry is estimated to total 825 million pages daily. That much paper, Wood theorizes, is obviously difficult to handle, difficult to store, and difficult to retrieve. However, something is being done to cut the paper volume. Micromation eliminates multiple printout runs, so that the computer can be maximized as a computer instead of as a printing press.

Wood's article gives a prime example of comparison. A typical application involves a firm which needed 10 copies of a report containing 15,000 pages. Using paper, the report required 40 hours to print, decollate, burst and bind into 225 volumes, each 3½ inches thick. The books weighed a total of 1,000 pounds and required a fork lift to move them around.

Changing to microfilm, all 10 copies were printed in four hours and distributed in a package no larger than two cartons of cigarettes. Additional copies were made in 15 minutes without disturbing the computer, and the entire 15,000 page report could be mailed from the east coast to the west coast in 24 hours for less than 50 cents worth of postage.

Wood, in summing up "Micromation Magic," as to the most significant benefits, says retrieval from microfilm can be accomplished in one-third the average time for ordinary computer methods; storage on film averages two per cent of hard copy space requirements; and test runs on computer overhead show a 40 per cent reduction of computer time to process application programs themselves when report printing is transferred from impact printer to tape.

Looking to the future, Wood predicts computer - output - microfilm will become more and more of a factor in the information systems of computer-oriented companies.

Con-Trib Donations Of $2,500 Okayed

Grants totaling $2,250 were allocated by the Convair Employes' Con-Trib-Club committee in a meeting last month.

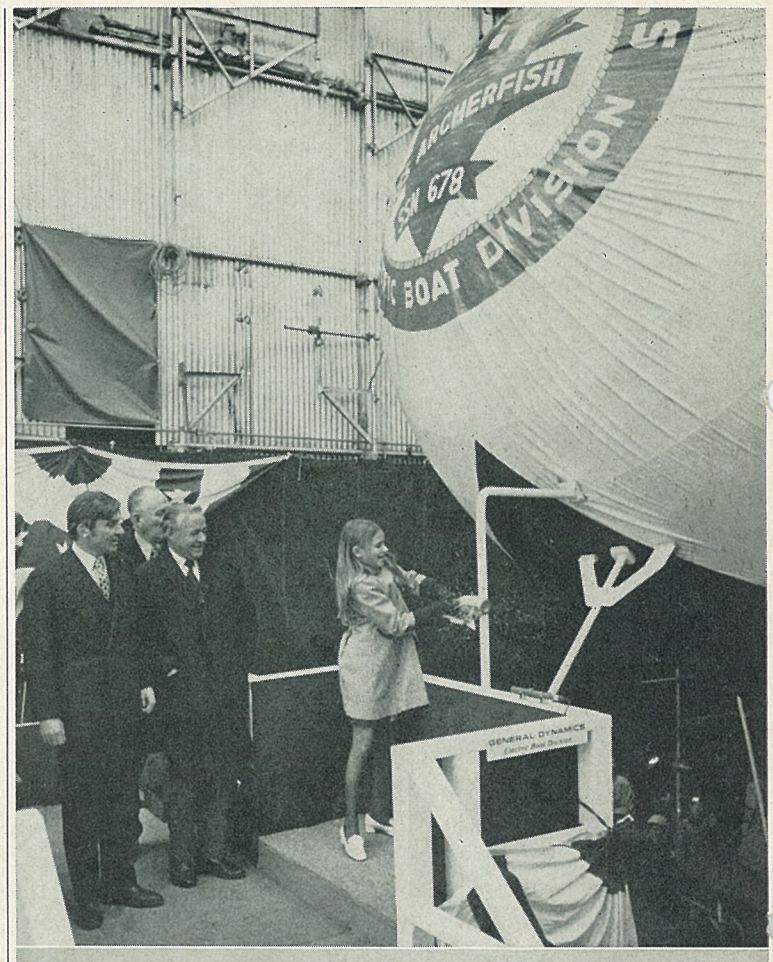
On recommendation of employes in the Los Angeles area, $800 was granted to the Los Angeles unit of Shriners' Hospitals for Crippled Children and $450 to Children's Hospital of Orange County.

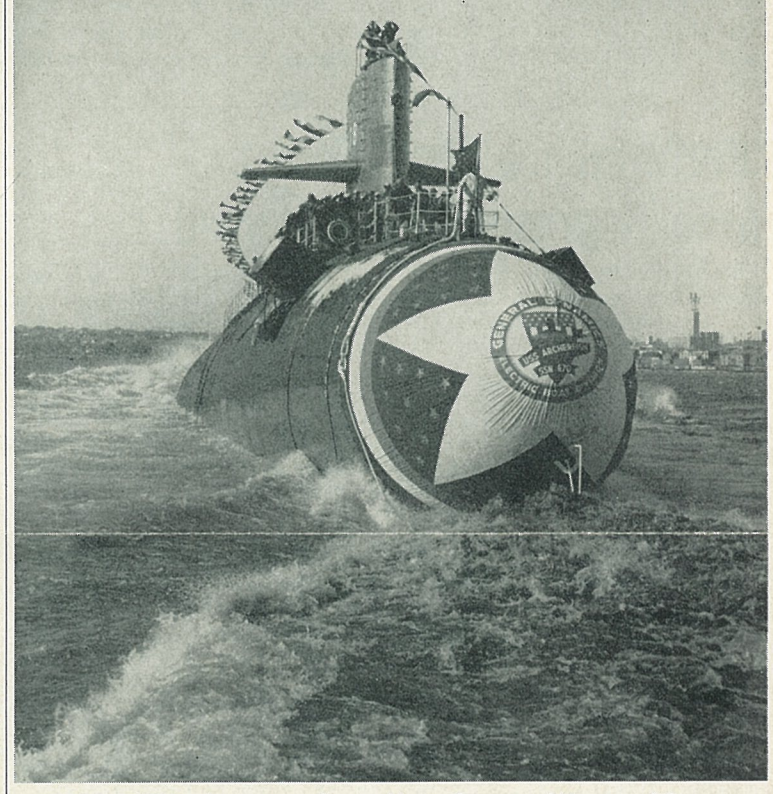
The other $1,000 grant was to the National Foundation for use by the Salk Institute in La Jolla.

Slide Rule Course Will Begin Feb. 9

El Cajon Evening Adult High School will offer courses in "slide rule and estimating" beginning Tuesday, Feb. 9, and "mechanical drawing" beginning Thursday, Feb. 11.

Both courses will be taught by Paul Stephens of Convair Aerospace-SD's Dept. 584-0. Registration will be taken at the first class meetings at El Cajon High School.





COLD BATH—In upper photo, Mary Conover Warner, 12, youngest person ever to sponsor a nuclear submarine, christens USS Archerfish. Below, Archerfish plunges into frigid waters of Thames at Electric Boat Division.

Attack Sub Christened By Twelve-Year-Old Girl

A twelve-year old girl christened the 4,200-ton nuclear-powered attack submarine Archerfish Jan. 16 and heard her father warn that "when it comes to national defense, there can be no generation gap in America."

Under Secretary of the Navy John W. Warner, told his daughter Mary and those of her generation "that this ship will protect you only if you protect it."

In ceremonies at Electric Boat Division, Warner declared that "the Russians possess the largest submarine force in the world" and "I hope, Mary, that someday your generation may never have to question how our nation prepared for that threat."

Addressing a large audience which included more than a dozen admirals, many of them distinguished submarine officers, Warner pointed out that two-thirds of the officers and men on active duty in the Navy have not yet reached their 25th birthday. In another five or six years, he said, referring to his daughter, "members of her age group will be among the crew of Archerfish. More startling . . . should be the fact that as Archerfish approaches the twilight of her active service, she will be manned by a crew not yet born."

"One of America's most priceless assets is the idealism which motivates its young people," he continued, but advised that "now you should gain an awareness of the responsibilities you must soon shoulder."

On hand for the ceremony was the Commander of the Atlantic Fleet Submarine Force, VAdm. Eugene P. Wilkinson, first skipper of the nuclear sub Nautilus launched 17 years ago on Jan. 21, 1954, by General Dynamics. Also present was retired Navy Captain Joseph F. Enright of Dover, Mass. who commanded the World War II Archerfish when it attacked and sank the 59,000-ton Japanese supercarrier Shinano.

The nuclear Archerfish has a complement of 12 officers and 95 men. Prospective commanding officer of the Sturgeon-class submarine is Cdr. Ralph G. Bird, a native of Dearborn, Mich.

Mitchell Describes Industry's Outlook

Don Mitchell, DatagraphiX executive vice president, has been selected by Business Automation Magazine as a spokesman for the computer - output - microfilm (COM) industry.

His comments appeared last month in a special computer industry article covering the outlook for the COM industry in 1971.

SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

Vol. 24, No. 4 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, February 17, 1971

$10½ Million Paid Out Via Savings Plan

A total of 12,723 salaried and hourly employes who participated in the General Dynamics Savings and Stock Investment Plans during 1967 recently received a distribution valued at $10,561,126, in accordance with their election last November.

The amount of distribution for any particular employe depended upon his investment option and the resulting return realized on General Dynamics common stocks, Government Bonds and diversified portfolio securities comprising his own account. For each dollar saved in 1967 by an employe, the company added 50 cents to his investment.

The distribution consisted of $9,779,741 in cash and 40,856 shares of General Dynamics common stock valued at $781,385. The cash included the value of Government Bonds, $5,542,410; the diversified portfolio securities $4,172,117; and fractional shares of General Dynamics common stock, $65,214.

Those employes who in November elected to defer distribution of their 1967 accounts now have a non-forfeitable right to those accounts, including both their own savings and the 1967 company contributions. These deferred accounts will remain invested in the plan.

Thirty days prior to the beginning of a calendar quarter, employes can elect to change the level of deduction or investment options which set the percentage of funds invested in Government bonds, diversified portfolio and General Dynamics stock for their account. Therefore, participants in the Plan have until March 1 if they wish to modify the amount of their future contributions or have them invested differently after April 1. Also, eligible employes not now participating in the Plan can sign up during the month of February to start participating on April 1st, the beginning of the next quarter.

* * *

A random sampling of Savings and Stock Plan members, who withdrew funds, brought these reactions:

"Last year I planned to spend it on a trip to Hawaii but I didn't get as far as Catalina," a Pomona secretary reported. "This 'great investment opportunity' came along. But it turned out bad. Wish I'd left the money in the

(Continued on Page 2)

SPACE MANUFACTURING—Size of in-space manufacturing experiment capsules are shown by Dave Gorham, left, and Dr. W. H. Steurer. Gorham holds duplicate of capsules used for experiments aboard Apollo 14 while Steurer displays transparent replica. Eighteen of materials capsules were used by astronauts in first in-space manufacturing experiments.

'In-Space Manufacturing' Tried Out by Apollo 14

Convair Aerospace Division provided special metals and techniques for 18 small sealed capsules used by the Apollo 14 astronauts in conducting the world's first in-space manufacturing experiments Feb. 7.

Fourteen of the capsules contained materials for use in composite casting experiments and the other four held materials for use in crystalline control experiments.

Dr. Wolfgang H. Steurer, head of the San Diego operation's space manufacturing team, said the experiments were to demonstrate the effect of zero-gravity processing and provide information that will be useful in developing future space manufacturing facilities for commercial enterprise.

The composite casting experiments used an indium-bismuth alloy that melted at 162 degrees, paraffin, and sodium acetate as matrices. The molten material mixed with copper-coated tungsten and boron-carbide particles, beryllium-copper fibres, tungsten particles, and argon gas bubbles.

Astronauts conducting the experiments shook the chamber containing the pre-packaged material capsules in a specified sequence of motions, then the capsules were cooled to solidify the composite.

The crystalline control experiments, also using indium-bismuth alloy, involved controlled heating and cooling but no mixing procedure.

"This will be our first opportunity to demonstrate unique materials processing under sustained weightlessness," Dr. Steurer said prior to the Apollo 14 launch.

"Related laboratory experiments at NASA-Marshall have been limited to about four seconds of free-fall weightlessness — while several hours may be made available without extra cost during Apollo fly-back time."

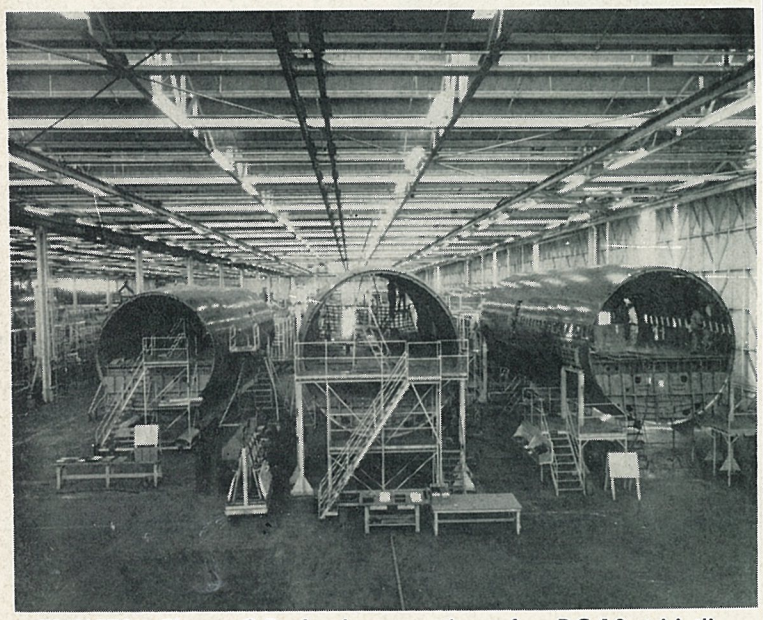
NASA-Marshall scientists were to be assisted by Dr. Steurer and others from Convair Aerospace-SD in evaluating the experiments after their return.

The Apollo 14 experiments marked a major milestone after more than three years of space manufacturing studies at Convair Aerospace-SD, including two years of technology development work for the materials laboratory at NASA-Marshall under the direction of Dr. Hans F. Wuenscher.

Skylab 1, tentatively scheduled for launch in 1973, will be the first manned earth orbiting laboratory to conduct space manufacturing investigations.

Convair Aerospace-SD's space manufacturing team completed a comprehensive study of processes for space manufacturing for NASA-Marshall last June.

Others assisting on the programs and areas of responsibility include Dave Gorham, program assistant manager; Dr. Samuel Kaye, physical chemistry; George Wood, liquid mechanics and experimentation; Jim Pardubski and Tom Hursman, manufacturing development; Jack Christian, metallurgy; G. L. O'Barr, fundamental physics; M. L. Lanfranco, fluid mechanics; and Sy Goodman, materials processing.



TRIPLETS—Three C-D fuselage sections for DC-10 tri-jetliners were being completed simultaneously last month at Convair Aerospace-SD. Jack Hurt, DC-10 program manager, said three units were on hand due to production line being accelerated for new two-fuselage-per-month delivery schedule.

Salvage Schedule

Next employes sales day at the Convair salvage yard, Lindbergh Field plant, will be Saturday, March 6. Hours are **from 8 a.m. until noon. Entrance is by badge. Children** and pets are **not allowed inside the yard. Also not permitted** are canvas or **open-toed** shoes and bare feet.

Hdq. Will Move To St. Louis

General Dynamics Corporation last week announced that its Corporate Headquarters will move from New York City to St. Louis, Mo. this year. The move will take place in phases, but should be completed by the summer of 1971.

David S. Lewis, Chairman of the Board of Directors, said that the decision to relocate the Company's headquarters is one of several designed to strengthen the Company's overall management.

"The Corporate Office top people will be expected to take an increasingly more active part in the management of our operating units," Lewis said.

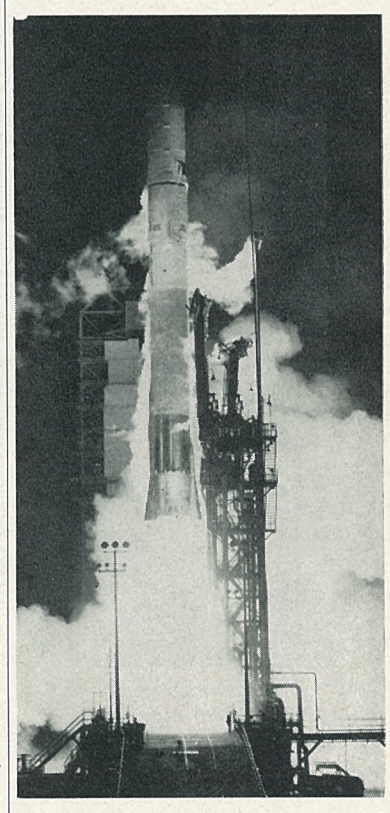
"To facilitate this," he said, "we have chosen a location where our headquarters personnel will have quick and easy access to our major operating locations."

The Company has major divisions or subsidiaries located in California, Connecticut, Florida, Illinois, Massachusetts, New York, and Texas, and in Eastern and Western Canada.

"After a survey of available sites," Lewis said, "the Board of Directors made their decision because St. Louis is well located, offers excellent facilities at reasonable cost, and provides major living advantages for our people.

"We believe this move will make it much easier for us to attract the good people we need for the years ahead."

Final selection of an office building in St. Louis is now in process.



LIFTOFF — Atlas-Centaur 25 lifts off Complex 36A at Eastern Test Range with first Intelsat IV communications satellite.

Intelsat Launch Precision Praised by National Experts

Grant L. Hansen, Assistant Secretary of the Air Force-research and development, was among government officials from whom Convair Aerospace-SD received congratulatory messages last month following launch of the first Intelsat IV communications satellite by Atlas-Centaur 25.

"I . . . extend my personal congratulations to you and all members of the General Dynamics Atlas-Centaur team for successful launch of Intelsat IV," Hansen said in a letter to K. E. Newton, director of launch vehicle programs.

"You can take justifiable pride in this being the 51st successful Atlas space launch vehicle in a row and in the Intelsat IV mission ushering in a new application of Atlas-Centaur in the commercial and international satellite field," Hansen wrote.

"I sincerely wish you and the entire team continued success in the remaining seven Intelsat IV launches."

Before being appointed assistant secretary in 1969, Hansen

(Continued on Page 2)

Aerospace Entry 'Tops Them All' In National Fire Assn. Contest

Convair Aerospace Division's San Diego operation has been named the "grand award" winner in the industrial division of the annual fire prevention contest sponsored by the National Fire Protection Association.

The entry was ranked first among 135 from industrial firms in the U.S. and Canada in the 1970 competition.

Quincy Shipbuilding Division, which entered the contest for the first time last year, placed fourth in the industrial division.

Stan Sharp, manager of industrial security for Convair Aerospace-SD, said winning the grand award in competition against the nation's leading automotive, aerospace, electronic, chemical, foundry, printing, and other industrial firms was "really an extraordinary achievement."

Del Dimmitt, chief of safety and fire, said the honor resulted from "outstanding performance by our firemen and by constant attention to fire safety procedures by supervision and personnel throughout the division."

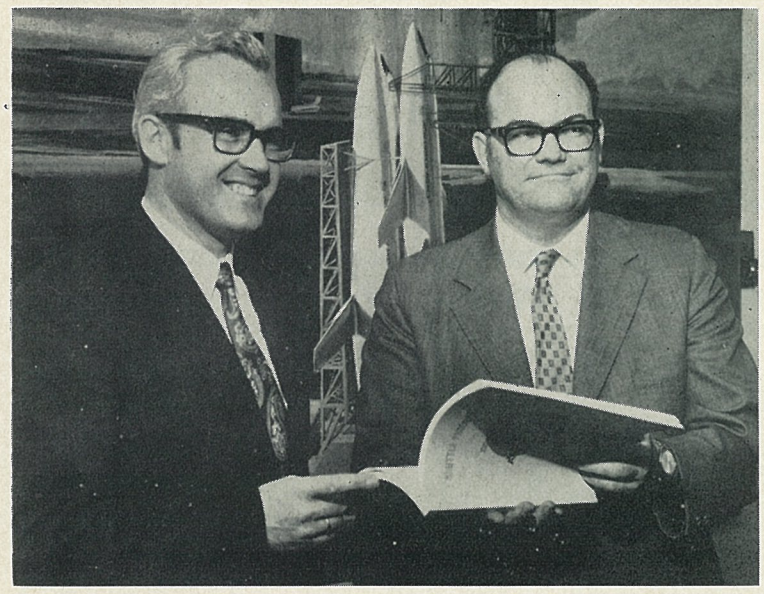
Capt. J. P. White of the San Diego operation's fire section and Len Parker of the art and editorial section compiled the 24 by 27-inch scrapbook submitted for judging.

White said the contest entry outlined the division's fire department organization and operations, fire-hazard inspection procedures, cooperation with other fire departments in the San Diego area, and participation in Fire Prevention Week activities.

More than 200 photographs of fire-safety activities were included in the scrapbook.

"It was very gratifying to win the top award against such stiff competition," White said. "Our best previous standing was a sixth-place award in 1965."

Special ceremonies for presentation of the grand award plaque by NFPA officials will be scheduled within the next few weeks.



GERMAN VISITOR—Hans Empacher, left, deputy director of Space Division of West German firm of Messerschmitt Bolkow Blohm, discusses Phase B Space Shuttle program tasks with Dr. Donald Dooley, Convair Aerospace-SD vice president and Space Shuttle program director.

SHUTTLE SESSION—W. L. Corcoran, left, Space Shuttle booster contract technical manager from NASA Marshall Space Flight Center, discusses recently approved program requirements during visit to Convair Aerospace-SD with Ivan Rattinger, right, deputy Space Shuttle program manager, and Davey Jones of program development office.

Requirements Established for Space Shuttle Design by NASA

Future Space Shuttle vehicles will be capable of launching 65,000 pounds of payload into a 100 nautical-mile circular orbit under new shuttle vehicle program requirements approved by NASA representatives in a recent conference in Williamsburg, Va.

William L. Corcoran, Space Shuttle booster contract technical manager for NASA's Marshall Space Flight Center, was at Convair Areospace — SD this month to review and discuss new design requirements.

Corcoran said the new criteria call for each of the booster's 12 main engines, as well as each of the orbiter's two main engines, to provide 550,000 pounds of thrust and for the shuttle vehicles to have a service life of at least 10 years.

Air-breathing engines to be developed for the booster's return cruise of up to 430 miles to the launch site will use standard jet aircraft fuel.

The two-stage, fully reusable shuttle vehicles will have all-azimuth launch capability. The booster will return directly to the launch site for landing. The delta-wing orbiter will have a seven-day, self-sustaining mission duration capability and a nominal hypersonic aerodynamic cross-range capability of 1,100 nautical miles before landing.

"The orbiter will be designed with a 15-foot-diameter and 60-foot-long cargo bay to provide great versatility in the type and size of payload that can be carried into orbit," Corcoran said. "The amount of payload weight that can be launched will vary—depending on direction of launch and other factors."

While the design mission is to place the 6,500 pounds payload into a 100-nautical-mile due-east circular orbit, there are reference missions of major interest for a south polar orbit and a 270-nautical-mile orbit at 55-degree inclination for space station resupply.

Corcoran said the shuttle booster vehicle will be designed with "two weeks maximum turnaround time" for maintenance and servic between launches. The booster and orbiter elements of the system will be designed for maximum interchangeability of common components and spares.

This Space Shuttle reusable vehicle will be designed with an airline-type of "shirt sleeve environment" for crews and passengers. Both booster and orbiter are scheduled to have two-man crews and the orbiter also will be configured to carry up to 12 passengers in addition to cargo.

If current NASA projections are met, the first vehicles may be flying routine missions into and out of orbit about 1979.

Convair Aerospace - SD and North American Rockwell are teamed for Phase B preliminary design studies, with Convair Aerospace handling the booster and NR the orbiter design.

Work already is under way on pre-proposal activity for the Phase C-D detail design and fabrication activity at both Convair Aerospace-SD and Fort Worth operation.

About 100 are working on the pre-proposal activity in Fort Worth under the direction of Dr. Robert Austin, assistant program manager.

Included are detailed design and manufacturing plans for the booster wing, air-breathing engines systems installation, vertical tail, landing gear, and canard. The canard is a small wing-like control surface to be located forward and above the booster's delta wing.

In addition, Fort Worth personnel are providing wind tunnel models, tests, and data reduction in studies of high-angle-of-attack heat transfer, orbiter plume impingement, and air-breathing engine injection flow.

MBB Personnel To Assist at SD In Space Study

Hans Empacher, deputy director of the Space Division of the Messerschmitt Bolkow Blohm (MBB) aerospace firm in West Germany, visited Convair Aerospace-SD recently for discussions of work his firm is providing for the North American Rockwell-Convair Aerospace team in the Phase B Space Shuttle study.

Personnel from MBB are handling preliminary design tasks on the attitude control system for the booster and orbiter and on auxiliary power. Related technical analysts, development planning, and test planning also are being provided.

Dr. Donald Dooley, Space Shuttle program director for Convair Aerospace-SD, said MBB plans to assign a small engineering cadre to work in San Diego.

"MBB technical personnel in attendance will improve liaison under the Phase B contract and will aid in assignments for the later Phase C-D detail design and production effort," Dooley said.

Switching Unit Gets NASA Okay

The first of 14 radio frequency matrix switching systems being produced by Convair Aerospace-SD for NASA use at Apollo Applications tracking stations around the world recently completed final acceptance tests and is being delivered to Merritt Island, Fla., for use in deep-space flight support.

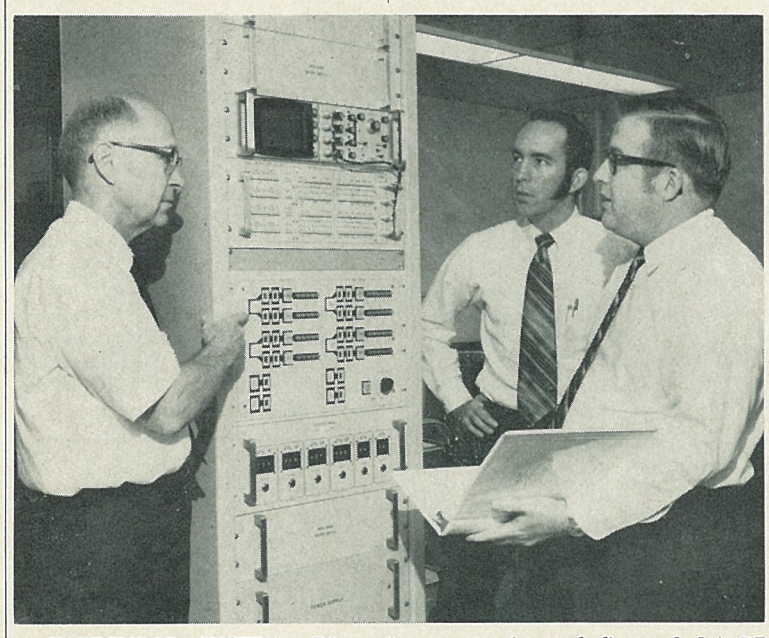
Verne Boyer, program manager, said the digital-controlled switching units have been designed and are being fabricated under a contract from NASA's Goddard Space Flight Center and will be used with modified S-band communication and telemetry systems at the NASA tracking stations.

Each of the units can receive and switch signals from 10 receivers to five demodulator units, then switch processed signals from the demodulator units to lines for users of the telemetry, voice, television, and morse code signals.

Convair Aerospace-SD won the contract for design and fabrication of the switching units on June 1, 1970, after competitive bidding with several other firms. The program is under the direction of W. T. Dorrance, director of special programs.

Dave Frye, Norm Howell, and Russ Thompson were key engineers for design. Frye now is providing engineering support for production, Howell for checkout, and Thompson for demonstration.

R. E. Spearing, contract technical officer for NASA-Goddard, and R. L. Williams, Bendix technical representative, were present for final acceptance tests of the first unit.



SWITCHING SYSTEM—Discussing operation of first of 14 RF matrix switching systems units being produced by Convair Aerospace-SD for NASA are, from left, Verne Boyer, program manager; R. E. Spearing, NASA-Goddard contract technical officer; and R. L. Williams, Bendix technical representative.

PUNCTUAL PEOPLE—In top photo, C. H. "Charlie" Sherman and M. L. "Tommy" Atkins of Dept. 149 Convair Aerospace-SD are congratulated by supervisors, W. B. Dawson and R. G. Goldinger, for perfect attendance during 1969 and 1970. In lower photo, C. F. Blair, factory manager, poses with employes who were recently honored for never being late, absent or early out. John Butina, Dept. 045, and Edith Barnes, Dept. 016, were singled out for their third year. Perfect attenders for 1970 were Oran Correll, Edwin Flukey, Guadalupe Lopez, Robert Peishel, Dept. 045; Karl Bennett, Jose P. Gomez and John Holland, Dept. 019.

$10½ Million Paid Out Via Stock, Savings Plan

(Continued from Page 1)

Plan!"

A Pomona design engineer had better news. "I withdrew to supplement other savings for a down payment on a house. I found a good buy and everything worked out."

A DatagraphiX electronics assembler confided that last year he used the money as a down payment on a camper and this year he'll use the distribution to pay it off.

The distribution this year will be greeted with mixed emotions by the family of one Fort Worth member. "I'm going to line up my five kids and take them to the dentist!"

"With two in college the funds have been more than welcome," a Pomona supervisor reported. "But soon I'll be able to leave the money in the Plan. I've one more year before I'm 'over the hump'."

A Fort Worth mill operator has plans with a definite Texas flavor. He's using his money as a down payment on grazing land for his cattle!

A Convair Aerospace secretary said this year's distribution came just in the nick of time. "My car just blew up!"

Intelsat Launch Draws Praise

(Continued from Page 1)

served almost 10 years with Convair and the former Astronautics division as chief design engineer, Centaur program director, and vice president-launch vehicle programs.

Among NASA officials who telephoned congratulations on accuracy of the AC-25 launch were Joseph B. Mahon, director of launch vehicle and propulsion programs, and Bland Norris, Centaur program manager, both from NASA headquarters in Washington.

A "virtually perfect performance" by the AC-25 in its launch on Jan. 25 carried the first Intelsat IV into orbit. A solid-fuel motor aboard the spacecraft then was fired to circularize the orbit and permit positioning the satellite at synchronous altitude over the Atlantic Ocean.

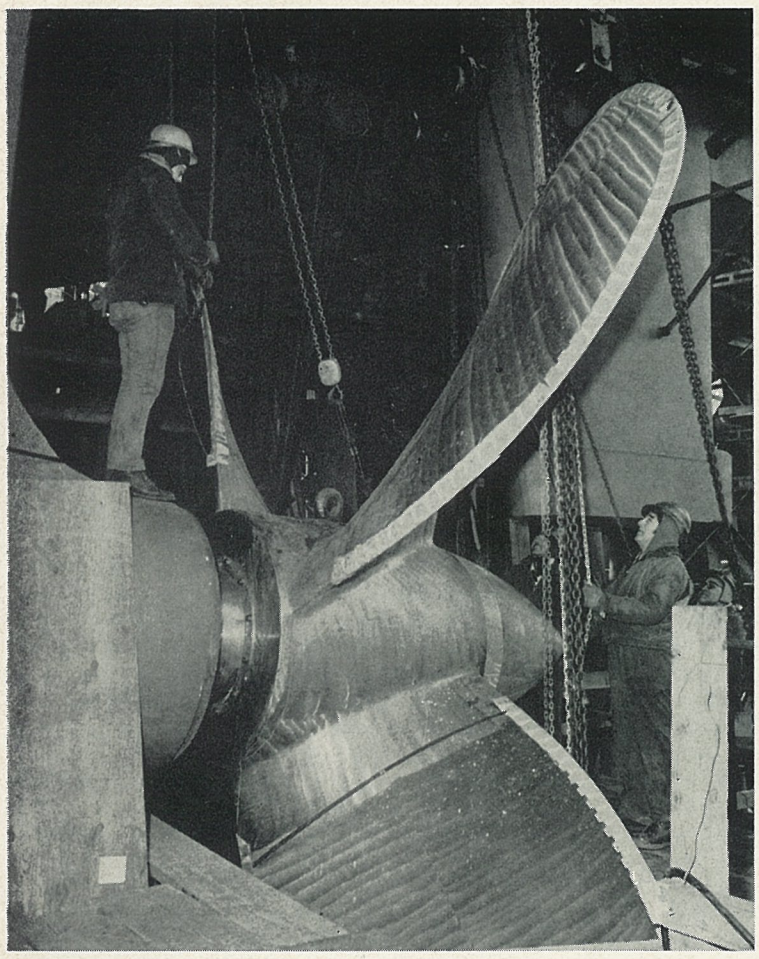
Space Mfg. Expert Suffers Heart Seizure

Dr. W. H. Steurer, head of the Convair Aerospace-SD space manufacturing team, suffered a series of heart attacks Feb. 6 a few hours before the Apollo 14 astronauts used technology he had developed in the first in-space manufacturing experiments.

Steurer was in charge of the materials laboratory at Germany's Peenemuende Rocket Center in the early 1940s. After coming to the U.S. in 1945, he was chief of materials research for U.S. Army missile and space projects at Fort Bliss, Texas, and Huntsville, Ala.

He joined General Dynamics with the former Astronautics Division in 1958. He is a member of the NASA Research Advisory Committee on Materials and the National Academy of Science Materials Advisory Board.

Be sure to use the ZIP code when addressing mail. It speeds up delivery!



RECORD INSTALLATION—Under worst winter conditions in 11 years and in near-zero temperatures, boring of stern tubes and installation of shafts and propellers on Wabash (AOR-5) was accomplished in record time at Quincy Shipbuilding Division. To make Feb. 6 float-out, job was handled in two 12-hour shifts.

DatagraphiX and Pomona Score in Safety For '70

Stromberg DatagraphiX has won the "best record" division of the 1970 Corporate safety contest, and Pomona operation of Electro Dynamic was first in the "best improvement" category.

First place in "best improvement in severity rates" went to Material Service Corp.

Pomona took second place ribbons in "best record" and "improvement in severity rates" while DatagraphiX was second in "improvement."

Freeman Coal Mining Corp. won two third place ribbons, one in "best improvement" and the other in "severity improvement," while Stromberg-Carlson Corp. was third in "best record."

This is the second year that DatagraphiX has won the "best record" category and represents two years without a disabling injury.

Material Service achieved a remarkable improvement in severity" with an 89 per cent reduction.

"To those of you who individually made, or bettered, objectives, my congratulations and encouragement to sustain this effort in 1971," Algie A. Hendrix, Corporate vice president, commented. "For those who missed the mark, your efforts must be redoubled. Our objective in 1971 again will be to show a 5 per cent reduction in frequency and severity rates versus three-year averages."

In other competition, General Dynamics divisions / subsidiaries also did well. To date, Pomona is holding first place in the 1970 nationwide National Safety Council competition in its division, while Pomona's Navajo facility has compiled 800,000 manhours without a disabling injury.

San Diego and Fort Worth operations of Convair Aerospace currently are in fifth and sixth places in the NSC competition for 1970, both well below the overall aerospace industry accident frequency. The Vandenberg AFB facility in September completed seven years without a lost-time accident, based upon 6.2 million manhours. Eastern Test Range facility in August completed three years free of disabling injury.

Electric Boat currently holds down fourth place in the NSC contest (marine section) for 1970.

DATA EXCHANGE—Jack Williams, group engineer in Pomona engineering's components, specifications and procedures section, and Wanda Mitsch check a report in Interagency Data Exchange Program data bank. Test reports on some 30,000 parts and components can be viewed and copies obtained on reader-printer. Williams has been elected to 15-man Contractor's Advisory Board for program operated by Navy, Army, Air Force and NASA.

Double Production Foreseen As Brick Works Adds Kiln

A $2 million investment in a new kiln to double production at the Powell & Minnock Brick Works, Inc., Coeymans, N.Y., was announced last month by M. James O'Brien, president of Marblehead Lime Co. of Chicago. Marblehead and Powell & Minnock are part of General Dynamics Corporation.

The new installation will have an annual capacity of 36 million standard face bricks and will make use of extensive shale reserves owned by Powell & Minnock. The kiln will be designed and erected by Swindell-Dressler Co. of Pittsburgh and will be a modernized duplicate of an automated tunnel kiln completed at the same location in 1964.

Philip Morone, vice president of Powell & Minnock, said, "This new facility will be the most modern and complete brick manufacturing plant in the eastern United States. Its geographic location, almost equidistant from Boston and New York City, will enable Powell & Minnock to increase its sales in the largest brick market in the nation and to meet the steadily growing demand for masonry products in the Northeast. We offer fast truck delivery by the New York Thruway or economical barge shipment down the Hudson River."

"In cooperation with our sister plant, Darlington Brick & Clay Products Co. of Pittsburgh," Morone added, "we will have a full line of quality clay products consisting of buff, gray and glazed brick in a wide variety of textures, colors and sizes."

Powell & Minnock, Darlington Brick and Marblehead Lime Co. are subsidiaries of Material Service Corp., the major natural resource unit of General Dynamics.

As part of a broader marketing program, William F. Minnock Jr., grandson of the co-founder of Powell & Minnock, has been appointed vice president of sales for both Darlington and P&M.

Morone said that the new Swindell-Dressler unit is a multi-burner, dual-fuel kiln. It will replace a scove kiln which had been turning out clay bricks for more than half a century. Completely automated, the new installation will have a car handling system which will be tied in with the existing kiln to assure faster transfer from production to storage area. Plans also call for the erection of a 16,000 - square - foot shed for shale after it has been trucked down from nearby quarries.

'Super Salesman' Of Bonds Retiring

The super salesman of U.S. Savings Bonds at Electric Boat Division is retiring.

During her 30 years with the company, Mrs. Dagmar Morrison has personally issued more than three million Savings Bonds worth an estimated $75 million. She is herself a regular investor in the payroll savings plan.

In 1969 the U.S. Treasury Department decided that Mrs. Morrison's performance was outstanding by any standard and awarded her a special commendation.

F-111B No. 3 Completes Phoenix Missile Series

F-111B No. 3 made its last flight last month following a series of successful Phoenix missile launches at Point Mugu, Calif.

The aircraft stopped briefly at Fort Worth operation before completing its final flight from Culver City, Calif., to the Naval Air Station at Lakehurst, N.J.

Over a four-year period, the Navy fighter proved highly reliable in launching a total of 25 Phoenix missiles over the Pacific Missile Range.

(The Phoenix, built by Hughes Aircraft at Culver City, is an air-to-air missile system capable of tracking and intercepting several different enemy targets at the same time.)

Several of the launches from F-111B No. 3 were at two radio-controlled drone aircraft; results were described as "excellent."

"Considering all the factors," said R. F. Trudeau, "the bird performed remarkably well.

"The drones were launched from one site, the chase plane from another. And of course No. 3 operated mainly from the Hughes facility at Culver City. Then there was always the 'weather.'

"Still, almost all the launches came off on schedule. Hughes rarely had to abort a mission because the plane wasn't ready."

During 34 months of actual testing, F-111B No. 3 averaged 1.8 flights and 16.1 hours of flight time a month—both high marks by testing standards.

Following its flight Dec. 20, 1965, at Grumman Aerospace Corp., the aircraft was bailed to Hughes which installed special Phoenix avionics and environmental systems. Compatibility and separation tests were completed before actual Phoenix launches were begun.

No. 3 logged 546 flight hours during a total of 367 flights.

At Lakehurst, No. 3 will be used in jet-blast deflector, barricade, and vulnerability tests—all ground operations.

Meanwhile, Hughes is continuing Phoenix tests on F-111B No. 7, with Fort Worth personnel continuing to support the effort.

Electric Boat Given $21½ Million Order

Electric Boat Division of General Dynamics Corporation is receiving a negotiated cost plus incentive fee modification which definitizes previously awarded contracts at a target price of $21,464,709.

The Naval Ship Systems Command contract covers purchase of three sonar systems and associated data.

Three Generations Compile Nearly 100 Years at Convair

The three-generation Rolston-Schaller family record of more than 96½ years with Convair Aerospace-SD and its predecessor firms is one that already probably can't be topped.

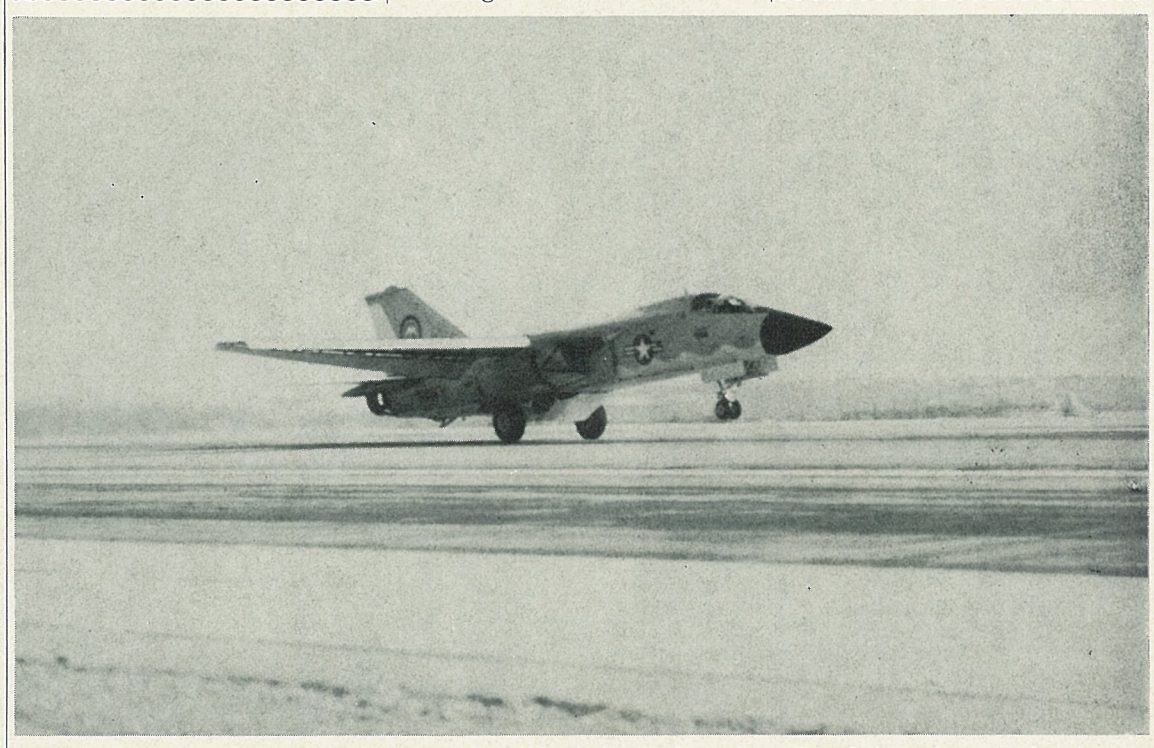
Jim Rolston, a Dept. 195-9 senior price estimator, has been with the division more than 16 years. His father, G. E. Rolston of tooling Dept. 420-4, has completed almost 33 years with the division since he first came aboard in 1936. His wife, Lorraine, added a short five months to the tenure skein in parts sales before leaving for maternity duties in 1956

Rolston's grandfather, E. H. Schaller, was a Dept. 25 carpenter for 21 years before retiring at the age of 78 in 1961. He died last November.

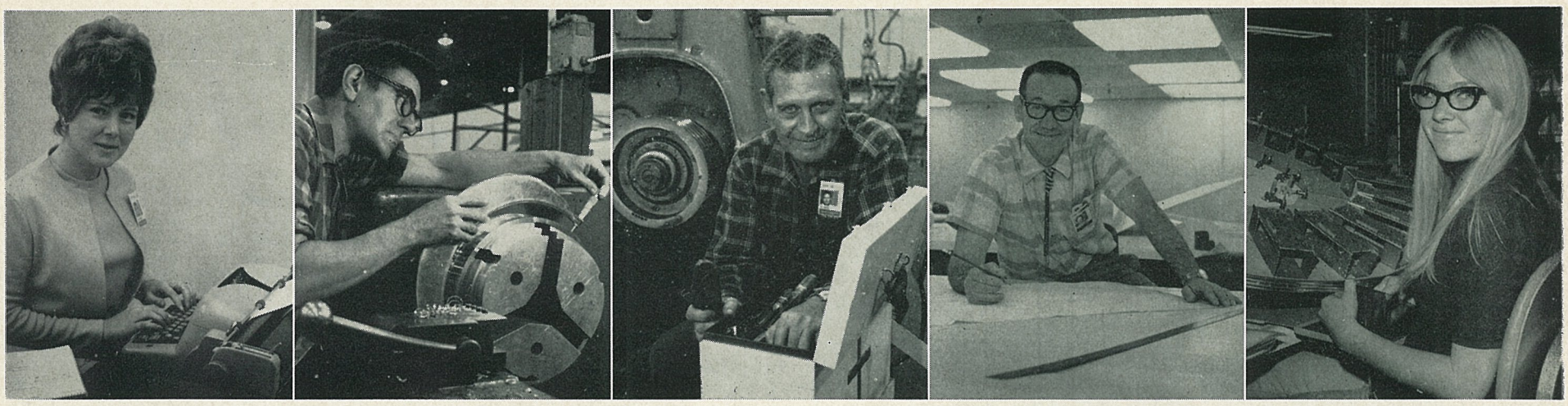
An uncle, L. L. Schaller, had more than 26 years service before he left the division's packaging engineering Dept. 553 in February 1969. He died six months later.

With less than four years remaining, the Rolston father and son still with Convair Aerospace-SD should have no difficulty between them in rounding out a full century of service for the family.

That, the Rolstons figure, will be a three-generation record that will take other families a good hundred years to equal!



OFF FOR LAKEHURST—F-111B leaves Fort Worth for flight to East. Trip followed successful Phoenix missile launches.



Norma Hicks, secretary for space shuttle requirements (Dept. 115-0) at Convair Aerospace-SD's Kearny Mesa plant, has been with the division six years and formerly worked in space science and S-3A and A-X aircraft program areas. She lives in Point Loma with her husband, Clarence, a senior design engineer in Dept. 962-8, and their two children, Becky, 3, and Cindy, 14. The Hickses met while both were attending Bluefield Junior College in Virginia and have since lived in Schenectady, N.Y., and Cincinnati, Ohio, while Clarence was with General Electric Co.

Richard F. Reilly, a 10-year Convair Aerospace-SD veteran and a lathe machinist in Dept. 731-0 at Kearny Mesa, uses a micrometer to check the diameter of an aluminum base being prepared for a missile radome. Reilly had his four-year machinist apprenticeship with Bethlehem Steel in Johnston, Pa., and worked there 10 years before moving west to Phoenix then on to Convair. He lives in Clairemont with his wife, Mary Carol, and their four children and enjoys camping, fishing, playing basketball and bicycling with the youngsters in his spare time. He says his job "can be very challenging."

Bill Goetz, a maintenance mechanic in Convair Aerospace-SD's Dept. 250-1, and his unique "machine first aid kit" tool box are a familiar sight at the Kearny Mesa plant. He handles maintenance on everything from lathes and milling machines to blueprint machines and cameras. Goetz has been with Convair and its predecessor firms 25 years and spent another five years with the company at Pomona. Formerly also a jigs and fixtures builder, he has had a hand in building fixtures and mockups for aircraft programs ranging from the B-24 to the F-106. He lives with his wife, Virginia, in East San Diego.

As a linesman at Convair Aerospace's Lindbergh Field plant, Rubin T. Crossman, defines lines or shapes both analytically and geographically. He joined the company as an apprentice 21 years ago. Rubin devotes much of his spare time to the White Mountain Apache Indians in Arizona. A family philanthropy, they make several trips yearly to the reservation with clothing they have gathered. Crossman, his wife Beverly, and eight children ranging from two to 21 years, also enjoy camping and riding motorcycles on the desert. The family resides in the El Cajon area.

Carolyn Hatch has been with Electro Dynamic-SD 2½ years as an electronics assembler. She's assigned to the EMID program where she wires circuit boards. A local girl, Carolyn graduated from La Jolla High School and attended Mesa College. She enjoys sewing when she has the time. However, she admits most of her spare time activity is centered around her fiance, David Gregg. "I'm learning to like football (almost) and other spectator sports and I really enjoy snow skiing." Carolyn says they have set no wedding date. She lives in the Pacific Beach area.

Log Book Entries

Service Emblems

CONVAIR

Service emblems due between February 1 and February 15.

FORTY-YEAR: Dept. 031, Ernst H. Roeckel.

THIRTY-FIVE-YEAR: Dept. 210, Roberts R. Hoover; 575, Ralph T. LeVine.

THIRTY-YEAR: Dept. 019, George E. Armstrong; 020, Robert F. Friar; 031, William C. Willenborg; 205, Virgil L. Akers; 228, Edward R. Cash; 250, Bernard E. Ahring; 400, Edward W. Steimach; 565, Martin W. Montgomery; 587, Leonard J. Koenig; 700, James M. Adamson; 840, George F. Anderson; 967, William P. Espinosa; 985, Clyde T. Brown.

TWENTY-FIVE-YEAR: Dept. 001, J. J. Schiller; 149, J. R. Gluyas Jr.

TWENTY-YEAR: Dept. 100, J. H. Mason; 131, K. H. James; 141, G. W. Wilcox; 148, Bonita T. Chandler, W. W. Graham, Rosa Marie Papa; 149, J. W. Washer; 170, Margaret H. Martin; 228, Norma S. Harrell; 229, Frances S. Dear; 250, C. Blake, J. E. Nicholson; 401, Laverne W. Reap; 515, Hazel C. Ferguson; 531, J. L. Phipps; 545, R. F. Shard; 561, D. O. Gerde; 566, J. E. Benson, R. A. Kenyon; 588, G. E. Hansen; 756, F. C. Vivani; 759, A. Corrao; 820, H. N. Brown.

FIFTEEN-YEAR: Dept. 027, R. G. Ferguson, H. N. Kinsey, W. B. Williamson; 110, Nancy L. Eldridge; 130, R. J. Cook; 131, R. B. Hashberger; 149, C. T. Harris, W. C. Hovey, C. H. Marier, C. A. McKinney, H. T. West Jr.; 191, Barbara J. Fullam, Louise J. Zupon; 221, E. F. Isham: 228, E. R. Garretson, N. I. Yandell; 229, O. L. Richeson; 401, M. E. Ashbaugh, M. L. Core; 491, L. D. Green; 519, B. A. Jones; 567, R. C. Appel; 572, W. R. Atkins, C. M. Ogle; 584, J. W. Streetman; 015, W. V. Moore; 759, H. E. Quade; 780, I. C. Lingard; 810, A. M. Smith; 951, C. Bierman Jr.; 967, J. S. Miller; 985, H. W. Anderson, V. D. Brose, J. D. Hamner.

TEN-YEAR: Dept. 046, Gloria M. Gonzales, Lupe L. Peralto; 101, F. J. Allen, Doris E. Gravelle, Rosemary L. McDaniel; 195, C. Leis; 228, Virginia H. Fullarton; 460, V. Perry; 507, G. W. Krause; 511, E. E. Perkins; 516, W. F. Hetrick; 562, R. W. Eilers; 574, J. S. Jacobsen; 589, S. T. Shepard; 754, A. A. Carlson; 966, R. J. Conway; 985, M. H. Johansen; 986, E. K. Kaukonen.

Awards

CONVAIR

Employe Suggestion awards approved for week ending Jan. 29:

J. B. Anderson, Dept. 149-6, $16; Billy R. Armstrong, 046-0, $27.10; Harry Ashton, 149-3, $29.20; M. E. Barba, 046-0, $410.70; S. A. Burgard, 046-0, $149.60; L. E. Campbell Jr., 144-1, $15; R. M. Castro, 046-0, $174.10; R. M. Cooper, 780-1, $15; C. J. DeSure, 840-1, $15; Pat A. Espinoza, 046-0, $61; M. A. Freire, 045-0, $135; Andrew Gonzales, 019-0, $83.20; M. D. Herndon, 001-0, $8.05; B. H. Hill, 204-2, $64.50; N. F. Lewis, 979-2, $550.90; J. Meza, 149-6, $16; C. P. McVay, 046-0, $18.65; Floyd Newton, 227-1, $15; F. L. Popham, 046-0, $18.65; H. J. Quick, 142-1, $15; J. M. Rivera, 221-1, $58; B. T. Robinson, 001-0, $23.90; N. L. Sherman, 045-0, $425.70; R. L. Snider, 731-0, $862.30; M. A. Thrasher, 001-0, $8.05; L. E. Turner, 761-0, $50.

Employe Suggestion award checks approved for week ending Feb. 5:

A. Becker, Dept. 015-0, $197.20; V. D. Brose, 985-1, $15; M. D. Campbell, 572-1, $95.70; J. Cesena, 046-0, $219 (five awards); R. M. Darling, 149-5, $7.50; T. C. DeBolt, 205-1, $277.20; L. K. Denaco, 507-0, $15; J. E. DeWald, 400-4, $133.60; W. A. Dickenson, 224-1, $49.40; R. E. Dubel, 141-2, $500; T. A. Eaton, 460-0, $113.40; R. P. Elsner, 250-3, $15; D. A. Falls, 149-7, $15; E. B. Jablonski, 250-3, $37.60; R. J. Kolek, 144-1, $15; C. A. McKinney, 149-5, $7.50; R. Montijo, 454-0, $25; W. Panke, 049-0, $15; B. E. Price Jr., 046-0, $105.60; W. J. Rose, $15-0, $50; D. N. Simpson, 002-0, $15; B. D. Snow, 420-2, $15; L. G. St. John, 979-4, $15; D. W. Stein, 962-3, $15; H. G. Thatcher, 810-0, $57.30; J. H. Turkle, 407-0, $15; W. A. Wherry, 046-0, $111.30 (two awards); P. A. Wuthnow, 507-0, $43.60.

Personals

CONVAIR

I wish to thank all my friends in production control at Lindbergh Field and Kearny Mesa for the many cards, flowers and thoughtful expressions of sympathy shown during the recent loss of my husband, Ralph.

Lorene Vanaltenburg
Dept. 228-4

* * *

The Frank Gordon family would like to express their appreciation to all Convair employes for their flowers, cards and thoughtfulness on the death of Frank (Red).

Mrs. Ester Gordon

* * *

The family of Loudeen T. Colt gratefully acknowledges your kind expression of sympathy.

Donald & Lori Colt

* * *

I wish to thank the Engineers and Architects Association, the Convair employes, and John's former department for the beautiful flowers and kindness following his sudden death.

Lucile Donan

* * *

Murray Edelstein underwent surgery at Sharp Hospital recently and is in need of blood. Donors should contact Bev, ext. 2123 LF.

Rider-Driver

CONVAIR

RIDE WANTED—From Solana Beach to Lindbergh Field plant, 8 a.m. to 4:45 p.m. shift. Call Ruth Lutz, LF ext. 1404 or (home) 755-1227.

RIDE WANTED—From Texas St. and El Cajon Blvd. to Lindbergh Field Plant, 8 a.m. to 4:45 p.m. shift. Call Thelma Clampitt, LF ext. 1404 or (home) 295-

Retirements

CONVAIR

ANDREAS—Andrew E., Dept. 221-1. Seniority date July 22, 1959, retired Jan. 29.

BEEMAN — Kenneth L., Dept. 143-5. Seniority date Jan. 11, 1951, retired Jan. 29.

CHESHIRE — George R., Dept. 002-5. Seniority date Aug. 1, 1947, retired Jan. 29.

DALLY—Johnie W., Dept. 027-0. Seniority date Nov. 21, 1946, retired Jan. 29.

FINLEY—Harold N., Dept. 250-1. Seniority date May 3, 1957, retired, Jan. 29.

HISAW—Johnie E., Dept. 149-8. Seniority date Jan. 23, 1952, retired Jan. 29.

LINN—Leonard B., Dept. 506-1. Seniority date Sept. 21, 1951, retired Jan. 29.

MAJOREK—William E., Dept. 250-1. Seniority date March 15, 1955, retired Jan. 21.

TAYLOR—Vardie, Dept. 027-0. Seniority date Oct. 13, 1947, retired Jan. 29.

THOMPSON—Harry D., Dept. 420-2. Seniority date March 31, 1956, retired Jan. 29.

WOLD—Maudie M., Dept. 780-1. Seniority date May 31, 1956, retired Jan. 29.

When telephoning, never mind the weather. Get to the point. Telephone time costs money.

General Dynamics News

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San Diego editorial offices:

Kearny Mesa plant, Bldg. 8, Mail Zone 104-61, P.O. Box 1128, San Diego, Calif. 92112. Phone 277-8900, ext. 3322.

Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P. O. Box 1950, San Diego 92112.

Winners Named In Annual Safety Contest

Two Kearny Mesa functions—machine shop Dept. 731 under Bob Franklin and data processing Dept. 101 under George Jacob—have been named 1970 winners in Convair Aerospace - SD's annual safety and housekeeping competition.

Del Dimmitt, chief of safety and fire, said Dept. 731 led in Group 1 with .049 points and Dept. 101 in Group 2 with .008 points. Vandenberg AFB won the off-site competition with only one serious medical case during the year.

Group 1 consists of functions in "high accident exposure factor" areas and Group 2 of functions in other areas. Standings are based on the number of employes and the function's lost-time accident, serious medical case, and delayed-treatment case records; safety inspection results; and safety meetings.

Runner-up in Group 1 category was Dept. 027, F-111 assembly at Air Force Plant 19 under Harry Rote. Tied for second honors in Group 2 were electronics manufacturing Dept. 780 functions under Frank Kemper and reliability control Dept. 143 under Fred Lee and D. R. Miller.

Permanent trophies are to be presented by Lyman Josephs, Convair Aerospace-SD vice president and general manager, at a dinner for supervisors of the winning departments next month.

Ray Taddiken's Hole-in-One Among Highlights of February Tourney

A hole-in-one by Ray Taddiken of Dept. 195 highlighted the February CRA golf tourney at Cottonwood Country Club.

Taddiken, playing in the 5th flight, holed out in one on the 143-yard 6th hole and finished with a low net 69.

Jerry Swarts with low net 66 and Bill Whitley's 71 low gross took 1st flight honors.

Other winners were: 2nd flight—Ralph Montgomery, low net 67 and Lynn William, low gross 78. 3rd flight—Tex Vining, 68, low net; Fred Mafnas, 80, low gross. 4th flight—John Herrington, 66, low net; John Lockwood, 82, low gross. 5th flight—Drew Kline, 66, low net; John English, 86, low gross.

The Annual Mickey Mouse tourney sponsored by CRA and Management Association is slated for March 27 at Torrey Pines with a shotgun start on the South course at 7 a.m.

You can buy U. S. Savings Bonds regularly for as little as 50 cents a week.

LONG SERVICE—Ernst H. Roeckel, right, Dept. 031-0, is congratulated by Lyman C. Josephs, Convair Aerospace-SD general manager, after 40 years service.

THREE OF A KIND—Receiving 35-year pins recently were, from left: Roberts R. Hoover, Dept. 210-0; Ralph LeVine, Dept. 575-4; Harry G. Rote, Dept. 027.

REPRO COSTS CUT—Herb Day, chief of graphic and photo reproduction, center, receives certificate from J. F. Thompson, director of engineering-administration and services, with H. R. Kennedy, manager of graphic services at left. Day was cited for saving $112,000 by improving graphic operations with installation of new equipment. His 34th CIP in four years brings total savings to $711,998.

'Winter Weekend' Set by Skaters

CRA Ice Skating Club has scheduled its 18th annual winter weekend at Big Bear Lake for March 5-7. The event is open to all interested employes and their families.

Bud Davies, commissioner, said accommodations again will be provided at Wawona Lodge. Cost of $16 (or $8 for children under eight) also will include breakfasts Saturday and Sunday and dinner on Saturday.

Ice skating, skiing, hiking, bowling, and other activities will be available in the Big Bear area. Each individual or family is to arrange its own transportation.

Reservations can be made through the CRA Clubhouse, the employe benefits desk at Lindbergh Field, or by mail to CRA Ice Skating Club, 4936 Yorba Linda Dr., San Diego 92115. Refunds will not be made after Feb. 27.

Additional information can be obtained by phoning Davies, ext. 2844 KM; June Reiger, ext. 1111 KM; or Joan Kosen, 274-5227.

Las Vegas 'Weekend' Scheduled by CRA

Convair Recreation Association will sponsor a weekend trip to Las Vegas March 19 through 21.

Cost for the weekend "package" will be $27.50 per person with two to a room and $32.50 for singles.

Included will be round-trip bus fare, two nights at the Stardust Hotel, a midnight show and cocktails at the Stardust, breakfast at the Thunderbird Hotel, lunch at the Castaways Hotel, and coupon books for chips, scrip, and drinks.

The bus will leave the CRA Clubhouse at 5:15 p.m. March 19 and leave Las Vegas for the return trip at 1 p.m. March 21.

Reservations can be made at employe benefits offices or the CRA Clubhouse.

Archery Instruction Class Begins Feb. 20

CRA Archery Club will begin a series of instruction classes for beginners interested Saturday, Feb. 20 at 10 a.m. at CRA Missile Park. Tips on target shooting and game hunting, as well as game laws and approved archery equipment will be covered in the course. For information call Al Phipps, ext. 656 LF or home, 295-8194.

Con-Trib Approves Grants of $5,000

Grants totaling $5,000 for three community service agencies were approved by the Convair Employes Con-Trib-Club committee at its first meeting this month.

San Diego City-County YMCA received $3,000 for its sustained membership drive and Community Campership Council received $1,000 for sixth-grade camperships. A $1,000 grant to Episcopal Community Service for purchase of van truck was approved contingent upon additional funds being secured for the purchase.

CRA Calendar

(For information on CRA activities call CRA headquarters, ext. 1111 KM. Deadline for next issue of GD/NEWS is February 23. Call ext. 1071 LF or 3322 KM. All meetings are held in CRA Clubhouse unless otherwise noted.)

★ ★ ★

ADVENTURERS—Meet 7:30 p.m. tonight (Feb. 17).

ARCHERY—Instruction classes start, 10 a.m., Feb. 20, CRA Missile Park.

BADMINTON—Play 7-10 p.m., Mondays, Federal Bldg., Balboa Park.

BICYCLE CLUB—Call Bob Williams, ext. 1148 LF for information.

BRIDGE — Duplicate bridge sessions, 7:30 p.m., each Friday.

CAMERA CLUB—Meet 7:30 p.m., Feb. 21, Photo Arts Bldg., Balboa Park. First Quarterly contest for 1971 is scheduled.

CERAMICS—Meet 9 a.m.-noon and 7-10 p.m., Tuesdays and Thursdays.

CHORUS—Rehearsals 7:30 p.m. each Monday.

COUNTRY & WESTERN MUSIC — Meet 7:30 p.m. Thursdays.

FENCING—Workouts and instruction 7:30-10:30 p.m., Fridays. YWCA, 10th & C Sts.

GOLF — 13th Annual Mickey Mouse tourney, March 27, Torrey Pines, 7 a.m. shotgun start.

GUN CLUB—Fun shoot, 9 a.m., Feb. 28, Gillespie Field gun range.

HEALTH CLUB—Open 9:30 a.m.-10 p.m., Monday through Thursday; 9:30-a.m.-9 p.m., Fridays; 9a.m.-noon, Saturdays; "Women only" weekdays, 9:30-11 a.m.

ICE SKATING — Big Bear weekend March 5-7. GD family skate night 6:15-7:45 p.m. each Thursday, House of Ice, Interstate 8 and Lake Murray Blvd. Flat rate fee $1 (includes skates).

MINIATURE RAILROAD—Work sessions Saturdays and Sundays, CRA Missile Park.

MODEL HO RAILROAD—Work sessions 7 p.m. each Tuesday, CRA Missile Park.

PISTOL CLUB—Shoot 9:15 a.m., Feb. 28, SD Police Pistol Range.

RADIO CLUB — Meeting 7:30 p.m., Feb. 18.

RIFLE CLUB—Senior shoot, 7 p.m., Feb. 24; Junior shoot, 9 a.m., Feb. 20, Gillespie Field Range.

ROADRUNNERS — Meet 7:30 p.m., Feb. 25, Gillespie Field Clubhouse.

SAILING—Meeting 7:30 p.m., Feb. 24.

SCULPTURE—Workshop sessions 7:30-10:30 p.m., Mondays.

SKI CLUB—Meeting 7:30 p.m., March 2, South Bay Club recreation room.

SQUARE DANCE—Dance 8-10 p.m., Thursdays.

STAMP CLUB — Meeting 7:30 p.m., Feb. 25.

TOASTMASTERS—Convair Toastmasters meet 4:30 p.m., each Wednesday. Dynamic Toastmasters meet 5:30 p.m., Thursdays.

TRAILERS—Meet 7:30 p.m., March 2.

Toastmasters Host District Conference

Convair Toastmasters Club 3745 hosted an executive officers' training conference for 41 officers from District 5 clubs in Southern California and Arizona on Jan. 23 in the CRA Clubhouse.

Six Toastmasters area governors served as moderators for training sessions followed by workshops for club presidents, administrative vice presidents, educational vice presidents, secretaries, treasurers, and sergeants-at-arms.

H. E. Seibert, president, said the club has extended a special invitation for membership to Electro Dynamic personnel being transferred to the Kearny Mesa plant. The club meets at 4:30 p.m. Wednesdays in Room C of the CRA Clubhouse.

BICYCLERS PLAN 50-MILE PEDAL

The CRA Bicycle Club has scheduled a 50-mile "Otay Mesa Meander" leaving from Bank of America at Sweetwater Road and Jamacha Blvd. at 7:30 a.m. on Feb. 27. Ride leader is Cy Campbell, ext. 1008 LF.

Safety Crib Moves At Lindbergh Field

The Convair Aerospace-SD safety crib for Lindbergh Field plant personnel has been moved from Bldg. 16 to the southeast corner of Bldg. 2, Col. A-2.

D. D. Dimmitt, chief of safety and fire, said operating hours at the new location is 8:15 a.m. to 5 p.m. Mondays and Fridays and 12:30 to 5 p.m. Wednesdays.

The Kearny Mesa plant safety crib is now open from 8:15 a.m. to 5 p.m. Tuesdays and Thursdays and the crib at AF Plant 19 is open from 8:15 to 11:30 a.m. Wednesdays.

Division employes purchased more than 400 Super-Kem dry chemical fire extinguishers after they were placed on sale last month at $8.50 each (a $12 saving).

"We were overwhelmed by the response," Dimmitt said. "We had to reorder several times and have a new supply on hand now for those employes who were unable to obtain them previously."

Dimmitt said the 2¼-pound, 14-inch extinguishers are ideal for home and camping use and can be used effectively on any type of grease, paper, or liquid fire.

Benefits Processing Changed for ED-SD

Processing of employe benefits for both Electro Dynamic and Convair Aerospace employes in San Diego now is being handled by Convair Aerospace - SD employe benefits.

Included are such services as administration, counselling, and processing of all forms related to medical insurance, life insurance, permanent and total disability, Savings and Stock Investment Plan and retirement.

"This task-assist is being implemented to assure the best service to Electro Dynamic employes while utilizing existing facilities and personnel to the fullest advantage," B. A. Kulchin, director of industrial relations for Electro Dynamic - Electronics operation, said.

Questions concerning benefits may be directed to the employe benefits office, ext. 2657 KM for insurance or ext. 2328 KM for retirement and savings and stock plans.

Magnuson Speaker At NMA Meeting

W. E. Magnuson, president of the National Management Association, and J. E. Cook, chairman of the board of directors of the Convair Management Association, were among speakers Jan. 22 at a meeting in Newport Beach for presidents of 26 California NMA-member management clubs.

Both are from Convair Aerospace-SD. Theme for the meeting was "How presidents make things happen."

Double Treat Due At Reduced Price

Employes buying reduced-price tickets for the 7 p.m. March 7 basketball game between the San Diego Rockets and Portland will find an extra treat in store for them, too.

Dr. Michael Dean, billed as the "world's greatest hypnotist," will present an hour show following the game. Tickets are $2 (a $2 savings) and are on sale at all employe benefits and CRA outlets.

Ticket, Article Sale Hours Are Changed

Beginning Monday (Feb. 22), sale of miscellaneous articles and tickets at employe benefits offices in San Diego will be provided from 11 a.m. to 1 p.m. and 3:30 to 4:30 p.m. daily.

Paul Allgire, chief of employe benefits, said sale hours at the CRA Clubhouse will be 8 a.m. to 4:30 p.m. Monday through Friday except holidays.

RUNNING RECOGNITION—Ralph Mansfield, right, CRA Health Club director, presents "outstanding runner" trophy for 1970 to Fred Minter. Others receiving plaques for running more than 1,000 miles during year included Karl Kachigan, left, and Robert Broxholme.

Seven Health Clubbers Jog, Run 1,000 Miles

Seven CRA Health Club members have been presented plaques for jogging and running more than 1,000 miles last year in the club's physical conditioning program.

They are Wayne Groesbeck, Fred Minter, Jim Brady, Robert Broxholme, Karl Kachigan, Lane Cowgill, and Ralph Mansfield.

Minter also was awarded an "outstanding runner" trophy for his consistent daily running during the year and for working his way up from two-mile to 16-mile runs on weekends.

He ran his first 26-mile 385-yard marathon in January in 3 hours 41 minutes—a record for CRA in his age group. Groesbeck and Charles Bierman also established new records for the club in their age groups.

Two CRA runners, Elbert Smith and Tassilo Proppe, will be running the 60-yard dash against U.S. Senator Alan Cranston and others Feb. 19 at the San Diego Indoor Games in the San Diego International Sports Arena.

Tickets for the Indoor Games are on sale at CRA outlets at $3 and $4 (a $1 saving).

Dean McCoy Named To Hospital Board

Dean H. McCoy, chief of administrative and information services for Convair Aerospace-SD, has been appointed to the new Fairview State Hospital advisory board by Gov. Ronald Reagan and was elected chairman of the board at its first meeting Feb. 3.

The hospital board will provide advisory assistance for the State Department of Mental Hygiene and the state legislature and coordination with regional programs for the mentally retarded.

McCoy, a Democrat, had served seven years as a member of the former board of trustees.

'Cattle Cars,' Barnyard Sounds Scheduled for CRA Railroad

Younger passengers on the Kearny Mesa and Pacific miniature railroad at CRA Missile Park will have a new treat in store this summer when two covered "cattle cars" are added to the line's rolling stock.

Speakers in the child-carrying cars will emit tape recorded sounds of cattle, sheep, pigs, roosters, and other barnyard animals.

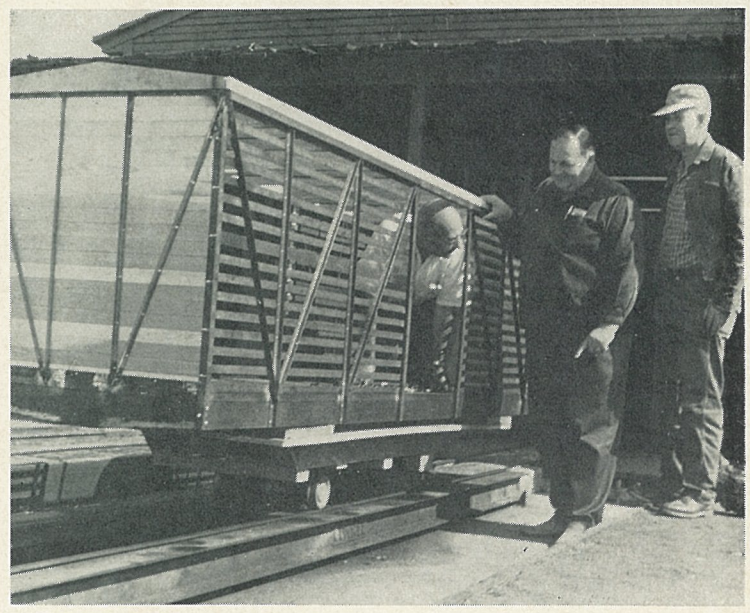
The cattle cars were designed by Leo Heyob, a veteran member of the CRA Miniature Railroad Club, from railroad blueprints and are being constructed on Saturdays by members of the club.

Bodies of the cars are being fabricated from wood and 1 x ⅛-inch angle iron and can be removed easily so their beds can be used as flatcars during work sessions on the railroad and its tracks.

The Kearny Mesa and Pacific drove its golden spike in 1965 and soon will log its 200,000th passenger mile. Highest number of passengers carried on one day last year was 3,187 on Aug. 9 during the Convair Management Association family picnic.

A 58-horsepower Diesel engine has been used in the line's locomotive during the past year and a half. A Chevy II engine had been used during the first five years of operation.

Officers of the club are Keith Bennett, president; G. G. Shipman, vice president; and Ed Mehrlust, secretary-treasurer. Al Kent is commissioner.



INSIDE INFO—Leo Heyob discusses inside work on one of two new "cattle cars" being built for CRA miniature railroad with Keith Bennett and G. G. Shipman, right. Cars are expected to be ready for summer use.

Dr. Mueller Chosen For Top U.S. Award

Dr. George E. Mueller, General Dynamics senior vice president, is among nine who will receive the 1970 National Medal of Science, highest award for distinguished achievement in science, mathematics and engineering that the United States confers.

President Nixon made the nominations.

Prior to joining General Dynamics, Dr. Mueller was associate administrator for manned space flight for NASA.

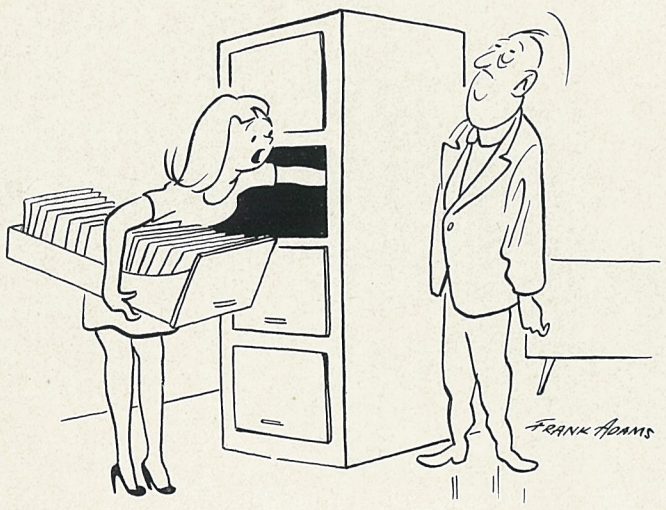
People Mobility

Personnel Transfers Within GD

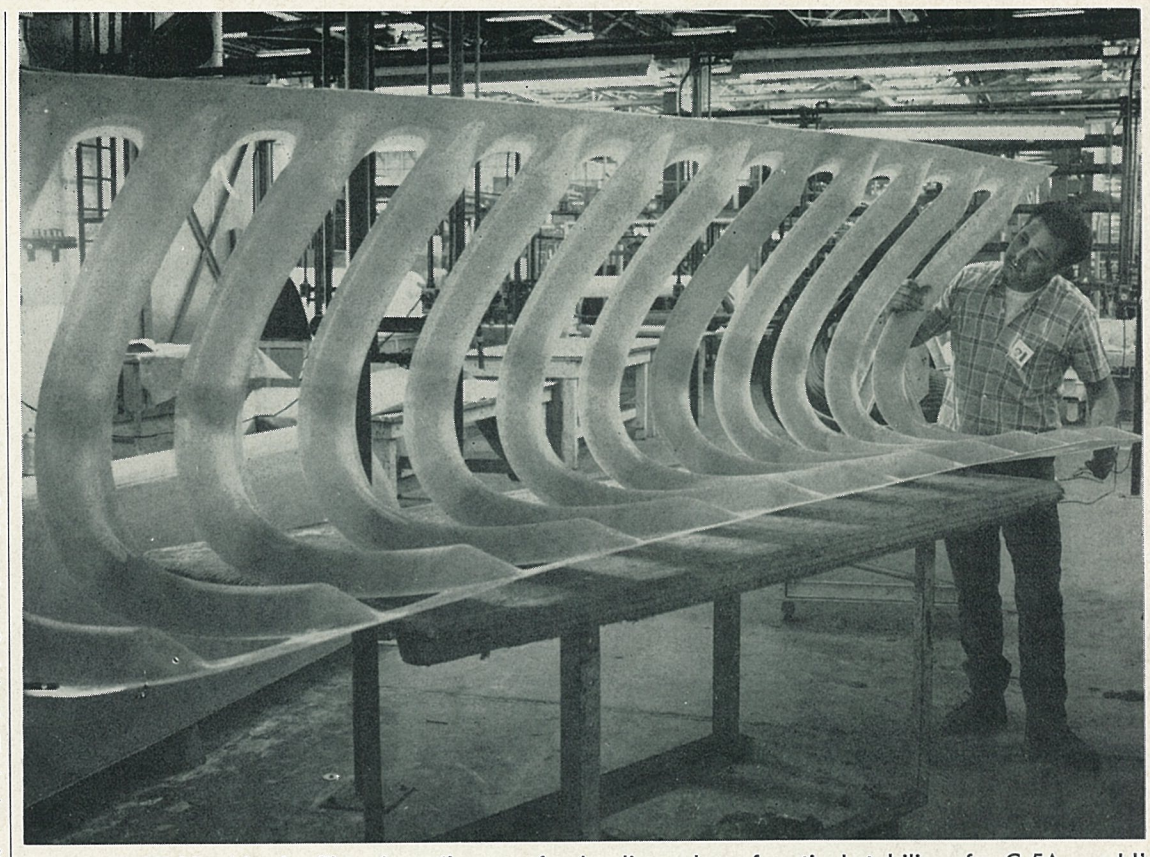
(Following are recent personnel transfers within General Dynamics. In parentheses are dates when individuals joined the company.)

JOHN W. PETRE (1960) from Convair Aerospace-SD to Electro Dynamic-SD as marketing manager; **RALPH WEBER** (1968) from ED-SD to Corporate Headquarters; **KENNETH CLAYTON** (1958) from ED-Roch. to principal engineer, ED-SD; **JOSEPH C. KOWASCH** (1959) from Convair-FW to ED-SD as senior financial analyst; **CARLETON L. CREAGER** from Stromberg DatagraphiX to manufacturing control project analyst, ED-SD; **THOMAS L. BARTLEY** (1967) from Convair-SD to ED-SD as senior engineer; **LARRY N. BAY** (1967) from Convair-SD to senior engineer, ED-SD· **JAMES F. MILNE** (1964) from ED-Roch. to ED-SD as principal engineer; **MELVIN E. KRUGER** (1960) from Convair-SD to purchasing agent, ED-SD; **FRANCIS N. THUDIUM** (1953) from Convair-SD to ED-SD as engineering drawings checker, **PETER S BRANSON** (1968) from Convair-SD to design specialist, ED-SD; **THERESA J. GONZALEZ** (1965) from ED-Roch. to ED-SD as engineering illustrator; **HARRY E. HUTCHINGS JR.** (1951) from ED-SD to Convair-FW as quality control engineer; **ANDREW CLEMENS JR.** (1953) from ED-Roch. to senior engineer, ED-SD; **QUENTIN E. CLEM** (1961) from Convair-SD to engineering planner, ED-SD; **LESLIE E. ROBY** (1966) from Convair-SD to marketing manager, ED-SD; **ROBERT C. GILLETTE** (1969) from ED-Roch. to principal engineer, ED-SD; **JOSEPH W. GRAFFIUS** (1963) from ED-Roch. to principal engineer, ED-SD; **ROLAND E. COOK** (1945) from ED-Roch. to Stromberg-Carlson, as production control supervisor; **ROBERT J. YOUNG** (1940) from ED-Roch. to senior engineering aide, S-C; **SAM FERSACI** (1957) from ED-Roch. to S-C as supervisor of hourly employment.

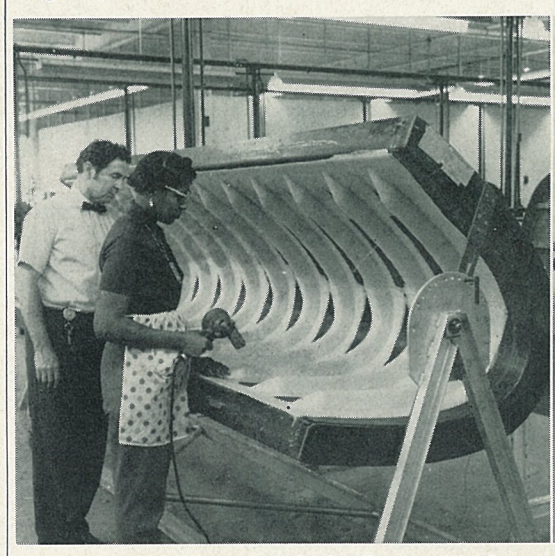
WILLARD L. SACHS (1962) from Convair-SD to ED-SD as EDP programmer; **RICHARD A. GIOVANNINI** (1966) from ED-Roch. to S-C as senior labor relations representative; **DAVID L. ARRIS** (1959) from Convair-SD to senior engineer, ED-SD; **GEORGE T. BARLOW** (1967) from Convair-SD to ED-SD as senior engineer; **RONALD C. LIFF** (1968) from ED-Roch. to senior engineer, ED-SD; **WILLIAM E. LYSKE** (1968) from ED-Roch. to product manager, ED-SD; **GLENN L. RICHARDS** (1964) from ED-Roch. to technical staff engineer, S-C; **NORMAN W. SCHOFIELD** (1957) from Convair-SD to senior engineer, ED-SD; **ROBERT F. MORRISON JR.** (1957) from ED-Roch. to engineering specialist, ED-SD; **LOUIS A. SCOTT** (1955) from Convair-SD to ED-SD as senior engineer; **JOHN N. SABO** (1969) from ED-Roch. to ED-SD as chief engineer; **WENDELL L. SITTSER** (1959) from ED-Roch. to S-C as manager of purchasing and traffic; **JOHN A. THAYER** (1957) from Convair-SD to test engineer, ED-SD; **NILES-AKE TAFVELIN** (1968) from ED-Roch. to ED-SD as senior engineer; **JAMES H. WINTERS** (1963) from Convair-SD to ED-SD as principal design assurance engineer; **DONLEY B. CATES** (1968) from Convair-SD to ED-SD as engineer; **FRANK V. PAUL** (1967) from Convair-SD to material liaison representative, ED-SD; **JOSEPH D. JOHNSON** (1956) from ED-Roch. to ED-SD as quality control engineer; **RAYMOND L. KRALEY** (1969) from ED-Roch. to principal engineer, ED-SD; **JAMES E. KRESS** from ED-Roch. to principal engineer, ED-SD; **RICHARD A. SWICK** (1954) from ED-Roch. to S-C as financial analyst; **FRANK E. BUCKLES** (1952) from Convair-SD to senior cost estimator, ED-SD; **JOHN P. BADER JR.** (1969) from ED-Roch. as product manager; **DAVID W. HELD** (1964) from S-C-Roch. to S-C-Orlando as production engineer; **LUTHER D. COUSINS** (1956) from Convair-SD to senior buyer, ED-SD; **WILLARD S. CUSHMAN** (1960) from Convair-SD to test engineer, ED-SD; **FRANK CICALO** (1952) from Convair-SD to ED-SD as material liaison representative; **WILFRED D. DE REPENTIGMY** (1970) from ED-Roch. to product manager, ED-SD; **ROBERT L. HARRIS** (1953) from Convair-SD to ED-SD as contracts administrator. **SHIVA S. SUBRAMANYA** (1967) from ED-Roch. to ED-SD as principal engineer; **URBAN J. SWEENEY** (1966) from ED-Roch. to ED-SD as principal librarian; **RODNEY D. JOHNSON** (1969) from ED-Roch. to ED-SD as manufacturing analyst.

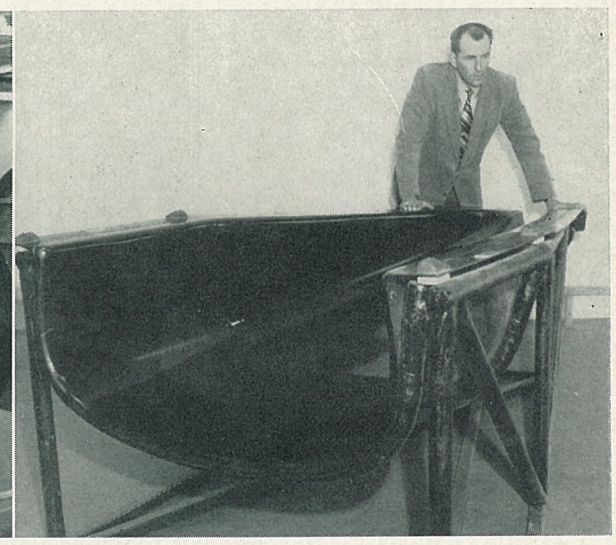


"I knew it was here. It's just knowing where to look."



WHALE RIBS?—No, its fiberglass rib cage for leading edge of vertical stabilizer for C-5A, world's largest jet aircraft, which R. V. Lucero, Convair Aerospace-SD fabricator, is looking over.





TOOLING—Mold in which rib cage is formed also is made of fiberglass. In left photo, Medoline Davis, plastic fabricator, places fiberglass cloth into mold as J. J. Zyirek, foreman, observes. At right, Bill Steele, manufacturing development engineer, checks lightweight mold for use in producing fairing for Atlas tank.

Significant Advancements Achieved Through Use of Light-Weight Tooling

Convair Aerospace-SD is fabricating and using fiberglass tooling molds as thin as 3/16-inch that are so strong they will not crack when dropped and so light they can be moved by one or two employes without use of a forklift.

"This is a significant improvement in fiberglass tooling technology," C. E. Roye, supervisor of manufacturing development, said. "Most industrial firms using fiberglass tooling assume ½-inch to 1-inch-thick tooling is necessary."

W. A. Steele, a manufacturing development engineer in Dept. 491-0, developed the new method for high-temperature fiberglass molds. Fabrication is being provided by molded plastic tool builders under the direction of R. W. Verdon, Dept. 401-0 general foreman at Lindbergh Field.

"We started last year with small fiberglass molds, then progressed to a big 12-foot-long mold for use in forming the fiberglass leading edge for the C-5A empennage vertical stabilizer," Steele said.

"Use of the light-weight tooling results in more than a 50 per cent reduction in labor and material cost, a 60 per cent reduction in production cure-cycle time, and virtual elimination of tool maintenance."

The plastic tooling molds are made by placing seven or eight layers of fiberglass cloth over a plaster master mold, applying vacuum to eliminate voids, and curing the mold at high temperature until the resin hardens.

Stands to hold the molds also are made of fiberglass to eliminate heat expansion problems that would result from use of metal with fiberglass in the curing ovens, and to reduce the mass of the entire tool.

Precision fiberglass products then can be formed repeatedly in the fiberglass molds. Use of a special liquid spray between the mold and the production article permits easy separation after the production item has been cured.

Success of the San Diego operation in creating and using the thin fiberglass molds and details in their production will be described by Steele in a paper, "Weight Abolishment System," to be presented in April at the fifth annual Plastic Tooling Conference at San Diego State College.

"Density is one of the secrets of high-quality fiberglass tooling," Steele said. "We use a clear resin system, pull a good vacuum over the resin-impregnated cloth, and have been able to produce virtually void-free molds with short production cure cycles," he said.

The big fiberglass mold now being used for production of the C-5 empennage vertical stabilizer leading edge weighs 350 pounds — a reduction of 1,450 pounds over the original fiberglass tool used. The finished product coming out of the mold for use in the empennage is made from 16 layers of fiberglass cloth, resembles the ribs of a whale, and weighs about 50 pounds.

A much smaller mold for an F-111 air intake duct weighs 55 pounds—345 pounds lighter than the mold it replaced—and has been handled at times by two women employes in the production plastics shop.

A mold used for manufacturing fiberglass fairings for use on the Atlas launch vehicle tank is so thin that the outline of a man's hand or other object can be seen through it under sunlight conditions.

"Our philosophy is if it has to be big, make it thin and strong," Steele said. "Several who didn't think it would work now are 'sold' on the thin-glass tooling concept."

Other innovations in fiberglass usage also are being tried at the San Diego operation.

Channel shaped fiberglass spacers recently were used to replace hard-to-design steel rods in a large plaster master for use on the DC-10-20/30 prgoram. Tolerances were kept to .010-inch over eight feet with about 240 hours in assembly time being saved over the previous method.

Verdon and Steele are presently evaluating the use of a commercial device to spread lightweight syntactic foam over a wire frame as a substitute for plaster in the production of master molds. The syntactic foam surface, after hardening, can be machined to desired tolerances. The hardened foam weighs only about half as much as plaster.

Steele joined Convair Aerospace-SD last year after three years with Pomona operation. He previously had worked with plastics and fiberglass tooling for 18 years at Leach Corp. in Azusa, Calif., Brunswick in Marion, Va., and U.S. Stoneware and Goodyear plants in Akron, Ohio.

SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

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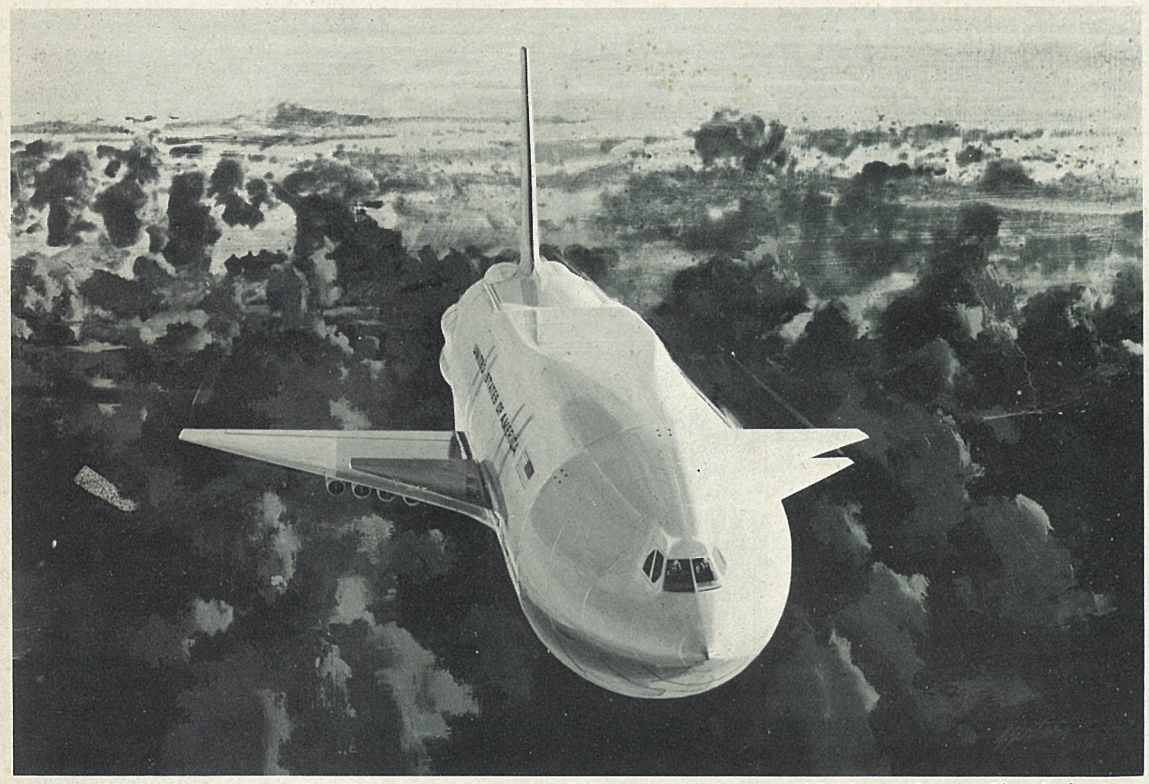


HEADING HOME—Painting by Roy Gjertson of Convair Aerospace-SD shows Space Shuttle booster heading back for launch site after releasing orbiter vehicle in space. Fully-reusable shuttle vehicles will be launched like a rocket by booster's 12 main liquid-hydrogen burning engines but will return for landing like present airliners.

AIAA and NASA to Sponsor Space Shuttle Meeting

General Dynamics people will have significant roles in a space shuttle technical conference to be sponsored by the American Institute of Aeronautics and Astronautics and NASA March 15-18 in Phoenix.

Dr. George E. Mueller, Corporate senior vice president, will chair a "low-cost space operations" panel session. Dr. Donald Dooley, vice president-space programs and space shuttle program manager for Convair Aerospace-SD, will appear on a "space shuttle maintenance and operations" panel.

Frank J. Dore of Convair Aerospace-SD will be chairman of a "shuttle facilities, logistics, and cargo handling" session. Bernard J. Wier of Convair Aerospace-SD has served as a member of the technical committee planning the conference.

F. R. Lee and H. G. Nulton Jr., both of Convair Aerospace-SD, will give a presentation titled "An approach to building reliability and safety into the shuttle." Warren G. Hardy of Convair Aerospace - SD will discuss "Space shuttle development test program."

P. M. Dyer of Convair Aerospace-SD and W. F. Edson of North American Rockwell will have a joint paper on "Shuttle sustaining engineering and logistics support."

Keynote speaker for the conference banquet will be Robert C. Seamans Jr., Secretary of the Air Force.

General Dynamics and North American Rockwell will have a joint four-kiosk exhibit on display at the conference—covering aerospace history, terrestial benefits from the space program to date, future benefits expected from orbital space operations, and space shuttle program requirements.

Graphics for the exhibit have been developed by Ron Bergner and George Paul of Convair Aerospace-SD's art and editorial section. The kiosk bases are being provided by the North American Rockwell Space Division.

* * *

Four Convair Aerospace - SD men will be presenting papers at the sixth aerodynamic testing conference to be sponsored by the American Institute of Aeronautics and Astronautics March 10-11 in Albuquerque.

R. L. Black and J. R. Pickelsimer will describe "Captive trajectory technique improvements of store separation studies in a wind tunnel" and D. P. Cumming and W. H. Lowe will discuss "Experimental wall interference studies in a transonic wind tunnel."

Response to RFP On Harpoon To Be Submitted Soon

Response by the General Dynamics team to a request for proposal on the Harpoon program is going this month to the Navy in Washington. The technical proposal will be submitted next Monday, March 8.

"Data analysis of captive seeker flight and ground tests at Pomona operation confirms analytical studies on target detection and glint effects," J. M. Guthrie, Harpoon program director for General Dynamics, reported. "This provides the General Dynamics team with a firm base for its Harpoon program seeker design."

Guthrie lauded the effort of all team members in preparation of the proposal. "The individual performances of the people involved in the program has been outstanding," he said. "The proposal effort has been successful because of the dedication and spirit of unity by everyone."

The General Dynamics team bidding on the Harpoon anti-ship missile program includes Boeing's Aerospace Group for missile propulsion system and aircraft integration and Honeywell's Marine Systems Center for shipboard integration. Electro Dynamic Division's San Diego operation will be responsible for development of the missile seeker.

Pomona operation will serve as the weapon system prime contractor and be responsible for the Harpoon missile guidance.

Lower Weapon Costs Proving Tough Problem

George R. Simpkins, director of material at Electro Dynamic Division's Pomona operation, spoke recently at the Annual Meeting of Missile and Rockets Section, Air Armament Division, American Ordnance Association, held at Andrews Air Force Base, Maryland. Following are excerpts from that talk:

"In the face of mounting Congressional and public criticism, DOD and the defense industry seem to be paraphrasing that familiar cigarette commercial: 'What do you want, good weapons or low cost?' The retort is 'Both!'

"That, in a nutshell describes the dilemma which is the theme of this 1971 meeting. In my talk today, I will attempt to identify and illustrate some of the factors which contribute to this dilemma and, therefore, identify some means to achieve 'Both': Good weapons at low cost.

"The factors which determine the basic cost of a tactical missile are established in the early part of a program — during program formulation and early development. Once established, the contractor has a relatively narrow band of cost variability to work with in attempts to reduce tactical missile costs. Industry alone cannot change the factors and conditions which prescribe the 'basic cost' of a tactical missile. Changes must be accomplished jointly by DOD and industry.

"Three major cost-influencing parameters which affect tactical missile costs are the performance requirements (in the broad meaning, including mission requirements, design details, reliability, etc.), rate and quantity of production, and the depth and degree of customer control over the contractor's process. It is during the formulation of the program and in development that these parameters are essentially established. Once established, the tactical missile production costs are 'fixed' within a relatively narrow range.

"These production costs can be reduced to some extent by the contractor's efforts. For instance,

(Continued on Page 2)

Procurement Quality Control Committee Hosted by Pomona

Pomona operation hosted a Corporate Procurement Quality Control committee meeting, Feb. 18-19, H. J. Stuart, Pomona's director of quality assurance, announced.

J. C. Schulz, chief of supplier control and mechanical/receiving inspection at Pomona, is chairman of the committee which this year has adopted the theme: "Prevention Rather Than Detection."

"New methods are being explored to insure General Dynamics remains a front runner in field of product quality assurance," Schulz said. "Utilization of the corporate interchange system resulted in savings of $492,-767 in 1970 through collective use of experience, knowledge and services."

Discussions at the February meeting included: cassette tapes as an important field communications technique, corporate code of ethics, "case" progress report, cost saving techniques for procurement quality control, standardized glossary, standardization of vendor corrective action, quality/cost effectiveness of source inspection versus source surveillance, and audit and quality assurance environmental testing.

A special tour of Pomona operation facilities was conducted by A. C. Villere, Pomona manager of purchase material quality.

Attending the two-day meeting were: S. Braun of Convair Aerospace-San Diego; R. T. Joyce and C. S. Wilkinson, Electric Boat; J. C. Carroll and G. H. Schwab, Convair Aerospace-Fort Worth; W. W. Wilimek, Electro Dynamic-San Diego; Villere, Schulz, A. G. Violet, K. W. Strowig, and D. R. Brothers, Electro Dynamic-Pomona.

Standard Missile Contract Awarded

Pomona operation of Electro Dynamic Division has been awarded a $4,823,841 contract for research and development related to the configuration of Standard Missile.

Announcement of the cost-plus - fixed fee contract was made last month in Washington by the Office of Assistant Secretary of Defense for public affairs.

The Naval Ordnance Systems Command is the contracting activity.

QUALITY DISCUSSION—Corporate Procurement Quality Control Committee members met at Pomona Feb. 18-19. Seated, from left: S. Braun, Convair Aerospace-San Diego; R. T. Joyce, Electric Boat; Committee Chairman J. C. Schulz, Electro Dynamic-Pomona; J. C. Carroll, Convair Aerospace-Fort Worth; W. W. Wilimek, Electro Dynamic-San Diego; A. C. Villere, Electro Dynamic-Pomona. Standing, from left: C. S. Wilkinson, Electric Boat; K. W. Strowig and Ron Brothers, Electro Dynamic-Pomona; G. H. Schwab, Convair Aerospace-Fort Worth; A. G. Violet, Electro Dynamic-Pomona.

Mason Named To New Post As Bowers Aide

James H. Mason, a 20-year General Dynamics veteran and director of communication for Convair Aerospace-SD since March 1969, has been appointed assistant to the president of Electro Dynamic Division.

J. H. Mason

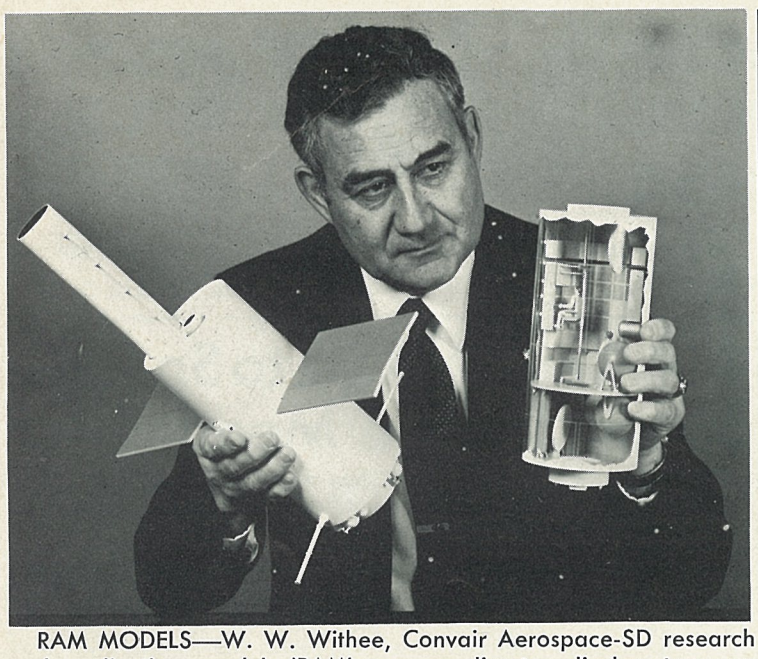
Jack L. Bowers, president, said Mason will be responsible for all division internal communication and community affairs.

Mason was manager of the General Dynamics corporate field office in Los Angeles for six years before being appointed director of communication for Convair Division.

He previously had served Convair for several years as an engineer in advanced projects and experimental flight test engineering.

As a Convair advanced projects engineer from 1955 to 1961, he worked on aerospace plane, nuclear seaplane, Navy re-entry vehicles, and similar studies.

Mason attended Tri-State College in Angola, Ind., and before coming to Convair was chief flight test engineer for Republic Aviation in Farmingdale, N.Y.



RAM MODELS—W. W. Withee, Convair Aerospace-SD research and applications module (RAM) program director, displays two new 1/40-scale module models. Module at left houses telescopes for advanced solar astronomy studies; that at right is of life sciences laboratory.

RAM Models Developed To Illustrate Design

Two research and applications module (RAM) 1/40-scale models have been developed by Convair Aerospace Division to visually illustrate design, appearance, size, and contents.

One of the models is of a RAM designed to accommodate life sciences experiments that normally would be operated by two men and that would be attached to the space station or space shuttle orbiter.

The other is designed to accommodate advanced solar astronomy telescopes for direct study of the sun. It would operate unmanned in free-flying orbit or could be manned while docked with the space station or shuttle.

W. W. Withee, RAM program director for Convair Aerospace-SD, said the new models are expected to be used in a variety of demonstrations and exhibits and can be used in conjunction with a 1/40-scale model of the North American Rockwell space shuttle orbiter vehicle.

"They say a picture is worth a thousand words—and we believe scale models such as these can be more helpful than a thousand pictures," he said.

Convair Aerospace-SD, North American Rockwell Space Division, TRW Systems, and Bendix formed one of the teams that submitted a proposal in January for the RAM Phase B preliminary design study contract.

Representatives from the four firms took part in an oral presentation and discussion relative to the proposal Feb. 10 at NASA's Marshall Space Flight Center. Speaking for Convair Aerospace were Frank Davis, president; Lyman Josephs, vice president and general manager of the San Diego operation; Withee; and Denis J. Powell, advanced systems project engineer.

Research and applications modules, expected to be used extensively in near-earth orbit in future years, will be carried into space and returned in the 60-foot-long cargo bay of space shuttle orbiter vehicles.

Withee said the scale models recently created represent a RAM life sciences laboratory that would be about 14 feet in diameter and 35 feet long and an advanced solar astronomy module that would be about 14 feet in diameter and 53 feet long.

The life sciences lab module would contain experiments that would help scientists to:

1. Understand the role of gravity in life processes and the capability of living organisms to adapt to gravitational changes.

2. Understand the role of time in biology, including the effects of time-varying environmental parameters on biological rhythms and aging.

3. Determine the potential applications and develop the techniques to utilize new biological advances in theory and space technology to advance medicine, biology, public health, agriculture, and space exploration.

Mounted around the interior wall of the lab would be 65 holding racks for lower vertebrate, higher plant, invertebrate culture, cell tissue, microbiology experiments, and mammals. Also provided would be freezers, refrigerators, and chemical storage racks.

A facility work area would contain equipment for data management, specimen preparation, and research. An experiment life support system also would be incorporated into the module.

The RAM for advanced solar astronomy would carry telescopes and other equipment to provide capabilities for observations in the 11,000 to 2-Angstrom spectral regions with better resolution than is obtainable from earth-based solar observatories.

Its largest telescope would be a 1.5-meter aperture photoheliograph. A smaller telescope, penetrating the end bulkhead of the module, would be a 0.5-meter grazing incidence X-ray telescope. Enclosed within the module would be a 0.25-meter XUV spectroheliograph. Space also would be available in the module for coronagraphs of 1 to 6 and 5 to 30 solar radii.

Solar cell array panels and bar electromagnets would be folded along the sides of the solar astronomy RAM during transport in the shuttle orbiter and would be extended for use in space.

The bar electromagnets will be oriented to react with the earth's magnetic field and used in conjunction with control-moment-gyroscopes to stabilize the module while its telescopes are in operation.

A monopropellant hydrazine reaction control system, consisting of 32 thrusters of 140-pounds-thrust each, would be used on the advanced solar astronomy RAM for docking, departure, and stationkeeping including correction of orbit due to drag.

Lower Weapon Costs Prove Tough Problem For Builders

(Continued from Page 1)

in real life it is fallacious to believe we initially achieve the optimum design solution to a set of requirements. Once, however, the weapon system requirements are 'cast in brass,' the contractor's only avenue is in attempting to reduce cost through refinement of the design solution to the given set of requirements.

"The cost of tactical missiles is greatly influenced by the rate of produciton and quantity produced. Higher rates result in changed, more efficient methods; while larger quantities provide a basis for lower cost through learning and through unit price reductions in purchased material. Yet government acquisition practices often do not achieve these benefits due to 'stop and go' contracting.

"In the area of DOD-industry cooperation, we are letting our requirements, which equate to needs, get too ponderous, too sophisticated, too restrictive to ever achieve low cost systems. The larger the number of these requirements, the more details of design are dictated and the less change of innovative solutions. This is because as secondary requirements are defined, the prescriber usually relates the requirement to some design solution—it is difficult to separate requirement from tentative solution, even when you're trying. Thus to a large extent a requirement is written from the point of view of a preconceived solution and innovative solutions are often precluded.

"DOD/Industry cooperation is needed to make any significant progress toward lower cost weapons. Trimming performance requirements to true needs and giving the contractor more freedom in design innovation by more selective change control methods are two vital steps in this direction."

Temple and Paschal Teach Safety Class

Several employes are instructors in a 12-hour safety training program for industrial supervisors being offered by the Safety Council of Fort Worth and Tarrant County.

They are Fred Temple, chief safety engineer; Frank Paschal, health physics administrator; and Virgil Armstrong, safety engineer.

$6,231 Saved by WATS Lapse

Disconnection of wide-area telephone service (WATS) lines from Dec. 19 to Jan. 4 resulted in a saving of $6,231.77 for Convair Aerospace-SD, Doug Zink, office services group supervisor, has reported.

"Because of consolidation and merging of departments and divisions during this period, long-distance calls placed through telephone company commercial facilities were greater in number than had been expected," Zink said.

"Although the saving actually achieved was considerably below the $16,064 maximum potential, it was about $1,000 more than was achieved during the year-end holiday period in 1969. We appreciate the cooperation from Convair Aerospace-SD personnel that made this possible."

Salvage Schedule

Next employes sales day at the Convair salvage yard, Lindbergh Field plant, will be Saturday, March 6. Hours are from 8 a.m. until noon. Entrance is by badge. Children and pets are not allowed inside the yard. Also not permitted are canvas or open-toed shoes and bare feet.

Field Team to Depart Soon For Tour of Duty in England

A field team of 146 people will leave for Upper Heyford, England, March 12 to support the 20th Tactical Fighter Wing through July, 1971, announced R. W. McGuffee, vice-president-operations.

The team is composed of 12 crews, six on the first shift and six on the second. R. E. Parker, field team manager, is responsible for all aircraft modification work, assisted by A. O. Hollis.

J. D. McMahan and J. D. McEachern, logistics support project engineers, will be responsible for customer coordination and reporting. W. M. Evans of the program director's office will be responsible for program management at Fort Worth during the field-team program.

Quality control personnel are headed by J. O. Gaston and G. W. Bowser. Supporting the team will be G. L. Magee, liaison engineer.

"The field team concept is one of the ways our customer is able to use our 'know how and ability' in supporting our product. It's most important we do a very efficient job in this assignment; our quality must be unquestionable," said McGuffee.

McGuffee said the Fort Worth operation team personnel will be operating under Air Force procedures and regulations.

Personnel will be quartered in three different locations—Oxford, Coventry and Cheltenham — and will be bused to and from the base by the Air Force.

ORDERLY—Clyde Mearis and Harry Rote observe from mezzanine of Plant 19 at San Diego, noting "orderliness" brought about by Convair Aerospace-SD "Performance Plus" program.

Tanker Model To Be Shown At San Diego

A nine-foot model of General Dynamics' proposed nuclear-powered submarine tanker to transport oil from the Arctic to ice-free North Atlantic ports will be on display at a Convair Management Association meeting March 17 in the Kon Tiki Room of the Catamaran Hotel, San Diego.

Sam Winram, public relations manager for Quincy Shipbuilding Division, will discuss plans for the 1,020-foot-long tender as spotlight speaker.

Main speaker for the meeting will be M. C. Frishberg, general manager of product marketing and services for Control Data Corp. in Minneapolis, who will discuss "The Management Sciences—Friend or Foe?"

"The application of the scientific method—whether it be called management science, operations research, or quantitative common sense—is here to stay," Frishberg says.

"It behooves today's manager to come to grips philosophically, if not technically, with this admittedly ill-defined discipline. A proper perspective can aid us all in the use of these promising tools."

Frishberg began a career in data processing with IBM in 1957 and concentrated on operations research techniques and applications as a special representative to manufacturing industries. He became director of management information for Raychem Corp. in Redwood City, Calif., in 1965.

In his present position with Control Data, Frishberg is responsible for tactical training of field marketing personnel as well as for all product and sales-support functions.

Tickets for the Management Association meeting are on sale at $3.25 each through boosters.

Dinner will include a tossed green salad; roast beef with string beans and a baked potato; rolls and butter; choice of coffee, tea, or milk; and a special St. Patrick's Day dessert. No-host cocktails will be 75 cents.

The meeting will be sponsored by the reliability control department with L. I. "Russ" Medlock, director of reliability control, as executive sponsor.

* * *

General Dynamics' submarine oil tanker model to be featured at Convair Management Association's March meeting also is being exhibited at San Diego and Pomona in-plant and other locations.

It currently is being shown for two weeks at Electro Dynamic Division's Pomona operation and was displayed Feb. 24 at a Propeller Club luncheon at the Ports of Call restaurant in San Pedro.

The model will be featured March 16 at a dinner meeting of the San Diego Propeller Club in the Hilton Inn.

Following the Management Association meeting, the model can be seen by Convair Aerospace-SD personnel March 18-26 in the Kearny Mesa plant lobby or March 29-April 2 in the Lindbergh Field plant cafeteria.

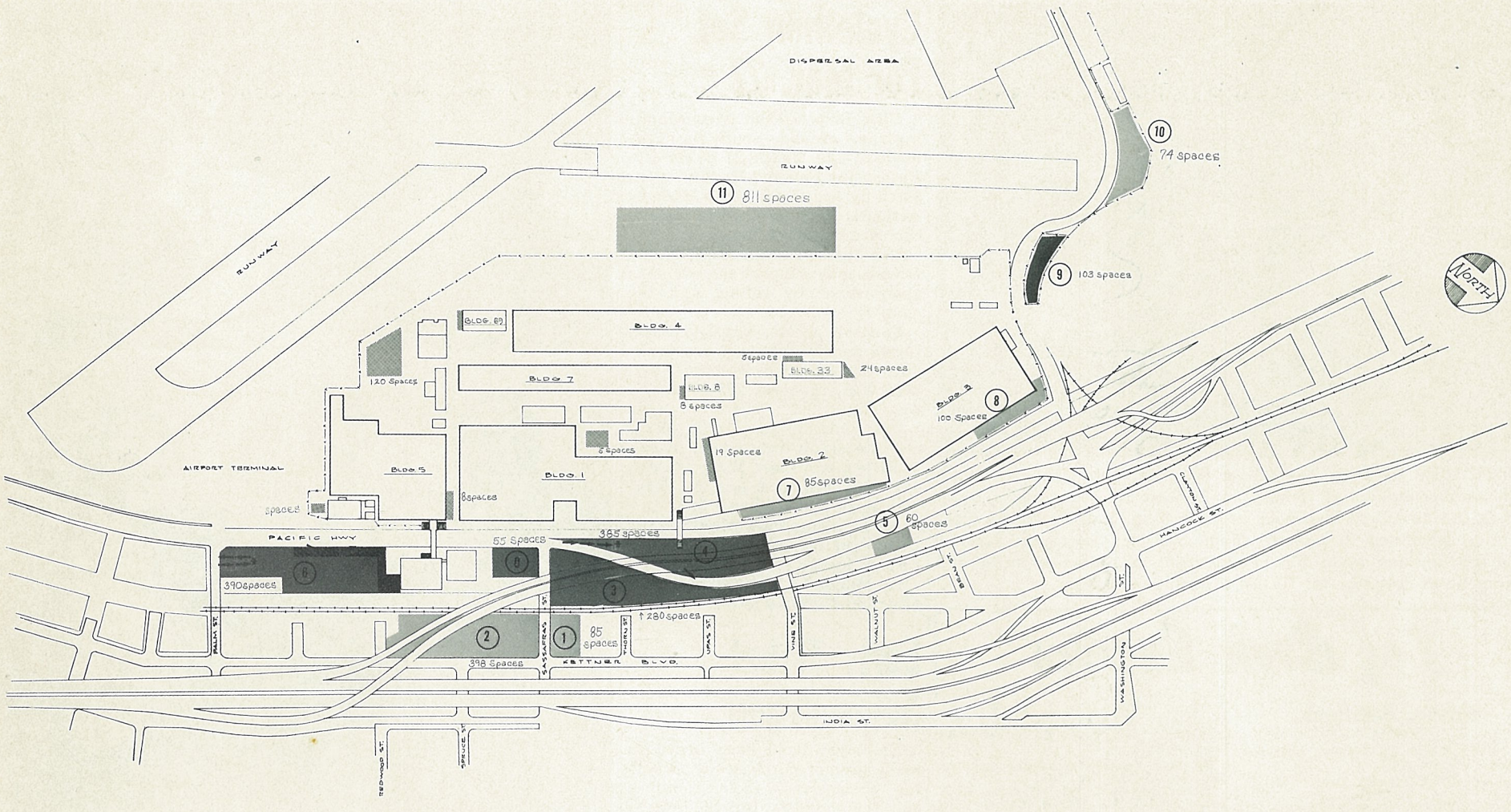
The full-scale, rectangular-hulled submarine tanker would carry 250,000 tons of oil at 17 knots through the Northwest Passage or under the Arctic ice pack. It would be equipped with advanced sonar and navigation systems and long-range obstacle detection devices.

To submerge, the tanker's main ballast tanks would be flooded and its diving planes used to control depth. Compressed air would be released to blow sea water out of the ballast tanks for surfacing.

Four Earn Science Degrees From SMU

Four recently received master of science degrees from Southern Methodist University. They are:

R. G. Bedell, civil engineering; J. A. Hart, electrical engineering; W. D. Lewis, systems engineering; and L. W. Salter, aerospace engineering, all of Fort Worth operation.



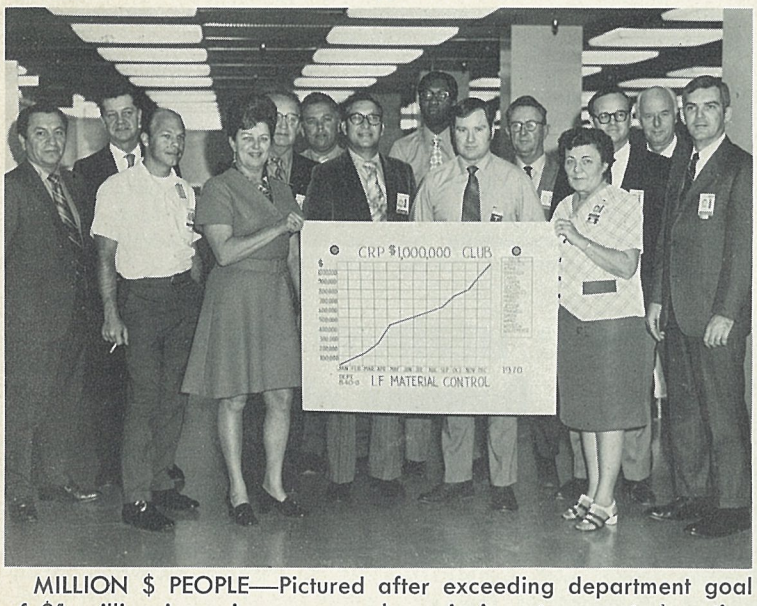
Fifteen Earn Honors For Saving $ Million

Fifteen employes from inventory control, Dept. 840-0, at Convair Aerospace-SD Lindbergh Field plant were recently commended for saving the division over $1 million through Cost Reduction Proposals submitted during 1970.

J. E. Ward, group supervisor, said over 50 per cent of the department personnel participated in the CRP program with 214 suggestions approved totaling $1,219,466.

Employes receiving recognition were G. F. Anderson, A. A. Atha, J. D. Barbieux, Bruno Cano, G. L. Cooper, H. E. Deaton, M. F. Gonzales, Gladden E. Harris, J. G. Hurd, Tina E. Maxwell, R. L. Smith, Ward, L. V. Wisniew, and C. H. Wulfemeyer.

Deaton was singled out for having the largest total savings of $284,700 as well as the largest single savings of $189,500. Gonzales was recognized as most frequent contributor with 80 approved suggestions.



MILLION $ PEOPLE—Pictured after exceeding department goal of $1 million in savings are employes in inventory control section of material control who were honored for their participation in Cost Reduction Proposal program. Department was credited with 214 approved suggestions totaling $1,219,466.

Five to Give WESTEC Papers

Five Convair Aerospace-SD men will have papers presented at the 1971 Western Metal and Tool Exposition and Conference (WESTEC) to be held March 8-12 in Los Angeles under joint sponsorship of the American Society for Metals and the Society of Manufacturing Engineers.

Dave Gorham of Dept. 491-0, deputy program manager for space manufacturing studies, will give a "Factory in the sky" presentation.

W. A. Roden, also of Dept. 491-0, will discuss "Resistance weld quality improvement made by in-process adaptive control."

Ray Adsit will present a paper prepared by himself and Jack Christian, both of Dept. 572-1, on "The effect of specimen configuration on the properties of boron-aluminum."

Don Weisinger of Dept. 572-2 will describe "Fabrication of metal matrix composite materials."

C. E. Roye, supervisor of manufacturing development for Convair Aerospace-SD, has served as a member of the Society of Manufacturing Engineers' advisory committee for the conference. More than 28,000 manufacturing engineers, scientists, and executives from the western U.S. and Canada are expected.

James Day Hodgson, U.S. Secretary of Labor, will present the keynote luncheon address March 8.

All Three Sections Shipped to Douglas For DC-10 No. 15

Convair Aerospace-SD delivered two complete "ship sets" of fuselage sections for McDonnell Douglas DC-10-10 tri-jetliners last month.

Included was all three sections for DC-10 No. 15, which is scheduled for its maiden flight in September and will be the sixth of the DC-10s to fly the United Air Lines insignia.

The last section (section E) is scheduled for delivery early this month for the 16th DC-10. It will be the second of the new "liners of the future" earmarked for delivery to National Airlines.

Jack Hurt, DC-10 program manager, said work is now underway on parts for DC-10s through aircraft No. 24. It has been ordered by Pan International, a charter airline with headquarters in Germany.

The first four DC-10s to come off the final assembly line in Long Beach had accumulated more than 450 hours of flight time last month during a combined total of 237 flights.

CRAFTSMEN ALL—Value engineering, Dept. 561-0, received Convair Aerospace-SD research and engineering department Craftsmanship Achievement banner for fourth quarter of 1970 for meeting and exceeding craftsmanship goals established by the department. F. D. Applegate, left, director of product design, presents banner to, from left, J. R. Spurgeon, J. S. Comber, F. E. Pearce, T. J. Boyer, H. P. Williams, D. H. Stromberg, and G. W. Bancroft.

New Parking Procedure Effective Mar. 8 at SD

Parking procedures at Convair Aerospace-SD Lindbergh Field plant will be revised beginning next Monday, March 8.

Major changes will affect lot 4, the rider-driver/second shift parking area; lot 6, used by visitors, vendors, cafeteria employes and decal holders; lot 7, now restricted to physically handicapped personnel, said E. "Gene" Fox, manager of personnel.

New guard cards and/or decals will be distributed by March 5, for lots 0, 4, and 9, and by March 31 for lots 3 and 6.

Lots 1, 2, 5, 8, 10 and 11 will continue to be open to all employes with permits not required for parking.

All lots will be re-striped for more efficient parking.

Lot 4 will adapt a gate controlled guard entrance and will be monitored by plant guards through a closed-circuit television system to insure proper use.

The present entrance-exit will become the exit with spiked guard installed to prohibit entrance of unauthorized vehicles. The entrance will be located at the south end of the lot near Sassafras St. on north bound Pacific Highway. The entrance gate will be placed about five car lengths inside the lot to prevent unsafe traffic congestion.

Drivers currently eligible for the rider-driver/second shift lot have been issued application forms and guard cards will be issued after forms have been returned and approved by industrial relations.

Normally, drivers need two passengers with most sports cars and trucks requiring only one. However, eligibility will be determined on an individual basis.

To apply for admittance to the rider-driver lot, the driver must have each rider sign the application and then submit it to industrial relations.

Employes with 3:30 p.m. start time may apply through department heads for admittance to lot 4.

Lot 6 will be divided into two separate sections, one for eligible General Dynamics employes and one for visitors, vendors and cafeteria employes.

General Dynamics employes will use the present entrance and exit, however, entrance rather than exit will be by guard card.

Entrance to the visitor-vendor and cafeteria personnel portion of the lot will be via Pacific Highway. Decals have been issued to firms that frequently visit the plant and security guards will periodically monitor the lot.

Lot 7 will be for employment applicants as well as handicap employes.

New System Keeping Tabs on F-111 Costs

Fort Worth operation is using a new system to keep cost and schedule tabs on the F-111.

Called CSPCS (Cost, Schedule, Planning, Control Specifications), the system was installed some months ago and operated on a trial basis.

CSPCS was validated recently by a special Air Force team.

"This new system enables us to precisely plan and measure cost and schedule performance on the program at any point in time," said L. F. Yoder, manager 111 financial control.

PRECISION PRESSING—William Fix, left, and Elvin Houeland, both sheet metal hand formers in Convair Aerospace-SD's Dept. 001-0, use new Dake hydraulic press in Bldg. 1 at Lindbergh Field to bring machined forging to within .015-inch tolerance. Press is used with division-made dies in processing of both side-frame and header-beam forgings for DC-10 tri-jetliner fuselages.

Log Book Entries

Service Emblems

CONVAIR

Service emblems due between February 16 and February 28.

THIRTY-FIVE-YEAR: Dept. 001, G. Schicht; 049, J. A. Gliebe.

THIRTY-YEAR: Dept. 027, R. C. Trout; 031, M. V. Kaiser; 046, H. F. Whisman; 222, F. L. Biscak; 460, M. O. Ramsey; 514, A. Avgerenos.

TWENTY-FIVE-YEAR: Dept. 031, H. W. Bluhm; 149, J. F. V. Dunn; 400, Viola F. Lee; 780, Emma W. Brown.

TWENTY-YEAR: Dept. 057, W. H. Lindsay; 149, Melsie J. Gerhardt; 170, C. A. Leonard; 103, Leta R. Walden; 210, R. Parsons; 223, Opal R. Cleary; 228, V. M. Barreras; 400, H. N. Alexander; 401, L. M. Schlife, M. A. Thomas; 460, O. C. Baillif; 508, W. J. Ellison; 524, Dorothy J. Oldfield; 532, R. S. Oberst; 579, L. E. Ditler; 731, D. J. Haldaman; 733, Gladys M. Butcher; 761, W. C. Hoofard; 802, V. O. Olson; 979, D. Ljungquist.

FIFTEEN-YEAR: Dept. 015, J. F. Silva; 105, C. Coverston; 140, G. D. Koulaxes; 142, J. E. Boykins, L. S. Chicoine, G. N. Elgin; 148, M. C. Rosengren, O. T. Young; 191, D. W. Davis; 204, R. A. Aaberg, J. L. McManuas Jr.; 225, J. C. Payne; 229, F. W. Fitzgerald, R. T. Kimmel, M. A. Randel Jr.; 400, D. P. Ellington Jr., A. E. Ramsey, R. Robiedo; 401, A. J. Garcia; 517, L. Hawson, C. T. Smith; 518, Florence M. Lingard; 565, A. E. Ruark; 579, P. Boskovich, K. F. Koehl, C. C. Woods; 595, M. E. Britt, W. F. MacDonald; 596, R. E. Gillson; 598, E. S. Saari; 761, C. V. Hawks; 780, J. J. Ballatore; 979, Doris R. Harris; 954, C. B. Simmons; 986, Helen E. Stalder; 988, C. C. Spikins; 989, F. Reavell.

TEN-YEAR: Dept. 015, A. Piscatello; 046, Hilda S. Goss, Delia L. Nickerson; 101, Irene M. Henderson; 105, Billie L. Laursen; 141, D. E. Petersen; 148 June H. Bryant; 194, R. F. Wryte; 250, J. Reid; 567, J. E. Frelinger, Sharrie C. Hughes; 572, S. R. Thomas; 574, K. C. Bonine; 578, C. B. Brantley, 579, R. Niebrugge; 732, H. Maxcy; 820, Helen U. Burns; 860, R. H. Ross; 954, J. R. Kintzer; 962, R. A. Sutton, 967, Michelene L. Finkbiner; 979 W. K. Forehand, R. C. Howington; 986, A. E. Wilmot; 989, J. A. Dubeck.

ELECTRO DYNAMICS

Service emblems due during the month of February.

THIRTY-YEAR: Dept. 423, R. A. Bada; 565, A. M. Mendez; 582, J. C. Perry.

TWENTY-YEAR: Dept. 102, Mildred P. Buffat; 423, L. J. Moran; 426, D. L. Anderson; 427, J. A. Lowe; 616, E. W. Revell; 923, Roberta C. Rand; 924, J. P. Spieker Jr.

FIFTEEN-YEAR: Dept. 582, E. L. Price; 616, M. J. Martinell Jr.; 711, T. A. Balestrieri.

TEN-YEAR: Dept. 102, Lena Feyerherm; 427, D. R. Greenawalt, K. P. Ponchette; 714, S. E. Junkermann; 774, C. S. Ashworth Jr.

Awards

CONVAIR

Employe Suggestion awards approved for week ending Feb. 12:

C. D. Amos, Dept. 979-1, $190.77; M. V. Archibeque, 016-0, $15; E. T. Bedell, 142-1, $82.10; R. M. Braeutigam Jr., 027-0, $15; W. E. Cardinal, 979-1, $190.77; R. H. Crowe, 046-0, $63.80; D. Thomas Jr., 221-1, $15; C. H. Fasching, 001-0, $7.50; E. J. Hine, 015-0, $46.10; D. E. Howard, 001-0, $7.50; M. S. Kilmer, 518-0, $210.10; W. H. Lowe, 507-0, $15; E. V. Marikle, 507-0, $7.50; R. J. Mastny, 015-0, $51.10; R. J. Matusiak, 144-1, $15; S. L. Mitchell, 001-0, $15; L. H. Nielsen, 046-0, $37.30; C. L. Parker, 149-8, $15; P. E. Petiford, 143-3, $25; E. R. Porras, 759-0, $15; R. W. Sanger, 507-0, $7.50; A. Sansone, 541-0, $51 (two awards); R. A. Smoole, 015-0, $15; R. L. Stevens, 045-0, $15; K. R. Waldrop, 027-0, $15; J. E. Williams, 407-0, $15; E. A. Zivolich, 512-3, $15; D. Carini, 512-3, $470; R. L. Tabadisto, 149-7, $32.70.

Employe Suggestion awards approved for week ending Feb. 19:

J. Alvarez, Dept. 027-0, $142.80; K. R. Bailey, 507-0, $15; M. B. Chamberlain, 143-3, $18.90; N. Chaudoin, 733-0, $40.80; M. K. Clark, 228-4, $63.80; R. R. Clarke, 015-0, $15; C. P. Dunifer Jr., 046-0, $94.40; W. A. Engelke, 250-3, $35.60; G. E. Finley, 015-0, $20; M. P. Lee, 210-0, $89; P. H. Milne, 143-0, $15; L. M. Moore, 511-4, $82 (two awards); I. P. Mouet, 046-0, $42.30; N. E. Moyer, 228-4, $17.80; E. Pfeffer, 566-3, $15; L. W. Poff, 250-3, $15; H. F. Richards, 143-5, $15; G. R. Simpson, 027-0, $26.10; C. R. Snow, 046-0, $75 (five awards); M. L. White, 590-0, $15; B. G. Williams, 170-1, $15; J. H. Wines, 027-0, $21.90.

Invention Disclosures

CONVAIR

CARTER—W. V., Dept. 583 and H. YOSHIHARA, Dept. 570. Advanced Jet Flap Profiles.

FRANKOWSKI—J., Dept. 572 and G. D. PEDDIE, Dept. 491. Structural Support Super Insulation Fact Sheet.

PATRICK—J. M., Dept. 401. Aircraft Hijack Prevention.

OKONSKI—R. J., Dept. 506. Underwater Mooring Line Cutter.

YAGER—Edwin, Dept. 507. A Means for Generating a Static Offset for Application to Dead Weight Testers.

"Cost Reducers"

CONVAIR

Five-credit awards—V. J. Lima, Dept. 146-3; G. D. Carroll, 005-0; J. Cesena, 046-0; J. Zoll, 144-1; W. A. Steele, 491-0.

Personals

CONVAIR

I wish to express the appreciation of myself and family for the many kind wishes and expressions of sympathy tendered to us as the result of the death of Kenneth Snyder.

Mrs. Betty Snyder and famliy

* * *

Eulene Davis wishes to express her sincere appreciation to the many people of Convair who sent cards and flowers to her while she was in the hospital.

Births

CONVAIR

LUZADER—Son, John, 7 lbs. 8 oz., born Feb. 12 to John (Dept. 027-0) and Maria Luzader.

Deaths

CONVAIR

BOARDMAN—Earle H., Dept. 110-1, died Jan. 28; survivors include his wife, Alice; a son, Richard; a daughter, Mrs. Connie Haskins; and four grandchildren.

SNYDER—Kenneth, Dept. 057-0, died Feb. 2; survivors include his wife, Betty; two sons, Kenneth L. and Bernard J.; and two grandchildren.

WOODS—Richard L., Dept. 780-6, died Feb. 9; survivors include his wife, Elizabeth; a daughter, Linda; and four sons, Tommy, Daniel, Richard, and Larry.

General Dynamics News

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San Diego editorial offices:

Kearny Mesa plant, Bldg. 8, Mail Zone 104-61, P.O. Box 1128, San Diego, Calif. 92112. Phone 277-8900, ext. 3322.

Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P. O. Box 1950, San Diego 92112.

Cyclethon Set For Mar. 27

CRA Bicycle Club is coordinating the Coronado-South Bay segment of the March 27 "1971 Cyclethon for Fun and Health" sponsored by American Youth Hostels, Arthritis Foundation, and American Heart Association.

General Dynamics families and friends may support the event as sponsors or by riding with the club.

Sponsor sheets, registration forms and information are available through Bob Williams, ext. 1626 KM, or home 222-3560.

* * *

The club has a 12-mile Miramar Reservoir ride slated March 7. Riders will meet Myke Dickey, ext. 2993 KM at 2 p.m. at Miramar Road and Highway 395.

An El Monte Park 25-mile jaunt with Paul Neiswender, ext. 2049 LF, as leader is scheduled for 9 a.m., March 13. Rendezvous is at Fletcher Parkway Bowl.

Early Ticket Sales Urged

Employes have been urged to make prompt purchases of tickets for themselves, their families, and their guests for the March 27 five-hour General Dynamics family party at Disneyland.

"Ticket sales are being limited," Ron Bippert, manager of family events for the sponsoring Convair Management Association, said. "We had a sellout last year—and there no doubt will be a lot of unhappy people when we come down to the wire this year and no more tickets are available."

Tickets are on sale at 18 in-plant locations at $4 each with children under three to be admitter without charge. Round-trip charter bus service from the Kearny Mesa plant is $3.75, also with no charge for children under three.

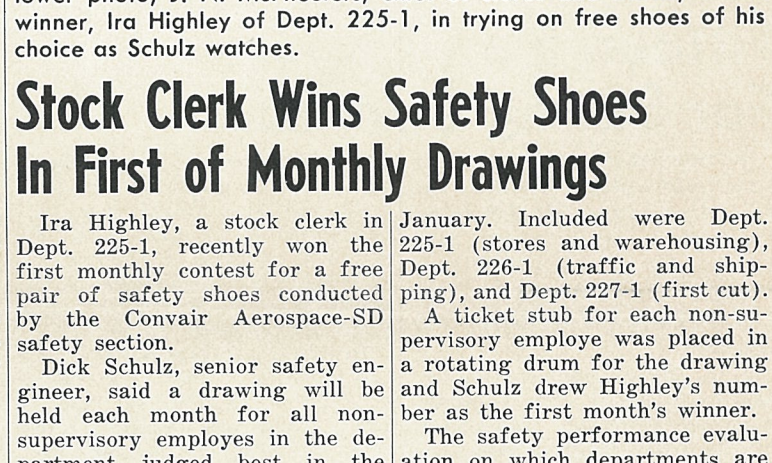
Disneyland gates will reopen for the private party at 8 p.m. Regular Disneyland dress regulations will be in effect.

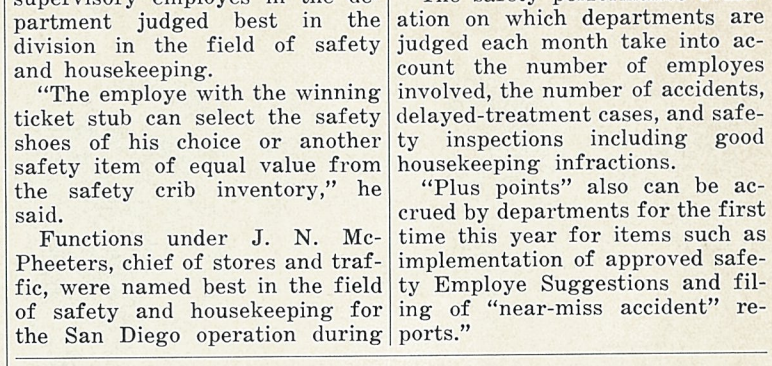
Scholarship Forms Still Available

Convair Management Association scholarship forms are still available at industrial relations offices at Kearny Mesa, Lindbergh Field, Air Force Plant 19, and all area high schools.

Six $500 scholarships will be awarded in June to sons and daughters of Convair Aerospace-SD employes who will graduate from high school this year.

Application deadline is March 31.





SHOE WIN—Dick Schulz, Convair Aerospace-SD senior safety engineer, draws winning ticket stub (top photo) in first monthly contest for pair of safety shoes or safety item of similar value. In lower photo, J. N. McPheeters, chief of stores and traffic, assists winner, Ira Highley of Dept. 225-1, in trying on free shoes of his choice as Schulz watches.

Stock Clerk Wins Safety Shoes In First of Monthly Drawings

Ira Highley, a stock clerk in Dept. 225-1, recently won the first monthly contest for a free pair of safety shoes conducted by the Convair Aerospace-SD safety section.

Dick Schulz, senior safety engineer, said a drawing will be held each month for all non-supervisory employes in the department judged best in the division in the field of safety and housekeeping.

"The employe with the winning ticket stub can select the safety shoes of his choice or another safety item of equal value from the safety crib inventory," he said.

Functions under J. N. McPheeters, chief of stores and traffic, were named best in the field of safety and housekeeping for the San Diego operation during January. Included were Dept. 225-1 (stores and warehousing), Dept. 226-1 (traffic and shipping), and Dept. 227-1 (first cut).

A ticket stub for each non-supervisory employe was placed in a rotating drum for the drawing and Schulz drew Highley's number as the first month's winner.

The safety performance evaluation on which departments are judged each month take into account the number of employes involved, the number of accidents, delayed-treatment cases, and safety inspections including good housekeeping infractions.

"Plus points" also can be accrued by departments for the first time this year for items such as implementation of approved safety Employe Suggestions and filing of "near-miss accident" reports."

New Waste Treatment Facility To Reduce Dumping of Chemicals

Fort Worth operation has taken another big step in its continuing battle against pollution.

The operation has opened a new Waste Treatment - Recovery Facility which will reduce the amount of industrial chemicals dumped into the sewer system and at the same time permit recovery of alkali solutions used in manufacturing.

"This'll help us keep in step with stricter city pollution regulations," said M. J. Puma, chief process control, chemical section, "and save us some money in the alkali-recovery process."

The new facility, located next to the Chemical Process Building, is in the early phases of operation. It should be operating at full tilt within a month.

Specifically, the facility's sophisticated new equipment and processes will be used to cut down the amount of chromates and cyanide solutions passed into the sewage system.

Chromates (a salt-like form of chromium) are used to clean aluminum; cyanides are used to cadmium-plate wing pivot carry-through sections.

Both chemicals must be replaced periodically in the manufacturing cycle.

In the new process, chromates will be pumped into two 12,000-gallon holding tanks, and later into a chrome - reduction tank, where sulfur-dioxide will be added to neutralize the chromates.

Then the chrome sludge bearing liquid will be processed through a precipitator and centrifuge, with the neutralized liquid passing into the sewer system and the remaining sludge dumped into a truck for disposal.

Abernethy, Levenson Elected to Office

Two Convair Aerospace-SD employes have been elected officers for 1971 in the Southern Calif. Music Masters of El Cajon.

Jim Abernethy will serve as public relations vice president and Max Levenson as administrative vice president for the group specializing in barber shop quartet singing.

The group is presently rehearsing for their annual benefit scheduled for March 13.

General Dynamics men interested in joining the vocal group may contact Levenson, ext. 508 LF or Abernethy, ext. 2051 LF.

ALWAYS THERE—Employes of Dept. 204 recently received certificates of commendation for perfect attendance during 1970 from W. R. Bruce, program planning and control manager. Pictured from left, are Shirley J. Sorokie, Ardis E. Pumala, J. C. Shaw, Bruce, J. M. Cooper, R. F. Perry, and W. L. Rix.

PHOTO FINALISTS—Clark Winsor, left, and Bob Pettyjohn show pictures they produced that won awards in CRA Camera Club's first quarterly competition for year. Pettyjohn also had one winning entry in color slide division.

CRA Calendar

(For information on CRA activities call CRA headquarters, ext. 1111 KM. Deadline for next issue of GD/NEWS is March 9. Call ext. 1071 LF or 3322 KM. All meetings are held in CRA Clubhouse unless otherwise noted.)

★ ★ ★

BADMINTON—Play 7-10 p.m., Mondays, Federal Bldg., Balboa Park.

BICYCLE CLUB—Call Bob Williams, ext. 1626 KM for information.

BONAIR FLYERS—Meet 7:30 p.m., March 4.

BRIDGE — Duplicate bridge sessions, 7:30 p.m. each Friday.

CAMERA CLUB—Meeting 7:30 p.m., March 21.

CERAMICS—Meet 9 a.m. - noon and 7-10 p.m., Tuesdays and Thursdays.

CHORUS—Rehearsals 7:30 p.m. each Monday.

COINEERS—Meet 7:30 p.m., March 8.

COUNTRY & WESTERN MUSIC — Meet 7:30 p.m., Thursdays.

DELTA DIVERS — Meet 7:30 p.m., March 10.

FENCING—Workouts and instruction 7:30-10:30 p.m., Fridays. YWCA, 10th & C Sts.

GARDEN CLUB—Meeting 7:30 p.m., tonight (March 3). Floral Association Bldg., Balboa Park.

GOLF—Torrey Pines tourney, March 27, 7 a.m. tee-off.

HEALTH CLUB—Open 9:30 a.m. - 10 p.m., Monday through Thursday; 9:30 a.m. - 9 p.m., Fridays; 9 a.m. - noon, Saturdays; "women only" weekdays, 9:30-11 a.m.

HI-FI MUSIC—Meet 7:30 p.m., March 9.

ICE SKATING—GD family skate night 6:15-7:45 p.m. each Thursday, House of Ice, Interstate 8 and Lake Murray Blvd. Flat rate fee $1 (includes skates).

MINIATURE RAILROAD—Work sessions Saturdays and Sundays, CRA Missile Park.

MODEL HO RAILROAD—Work sessions 7 p.m., each Tuesday. CRA Missile Park.

PISTOL CLUB — Shoot 9:15 a.m., March 14. San Diego Police Pistol Range.

RADIO CLUB — Meeting 7:30 p.m., March 4.

RETIREES—Luncheon meeting, 11:30 a.m., March 9.

RIDING CLUB—Meeting 7:30 p.m., March 10.

RIFLE CLUB—Senior shoots 7 p.m., March 10.

ROCKHOUNDS — Meeting 7:30 p.m., March 10.

SCULPTURE—Workshop sessions 7:30 p.m. each Monday.

SKI CLUB—June Mountain weekend, March 12-14.

SPECIAL EVENTS—Disneyland night, March 27.

SPORTS CAR CLUB — Meeting 7:30 p.m., March 10.

SQUARE DANCE — Beginners class starts March 9, 8-10 p.m.

STAMP CLUB—Meet 7:30 p.m., March 11.

SWIMMING—Family swim night 7-9 p.m., March 20, Mission Beach Plunge. Tickets at employe benefits, 5 cents.

TOASTMASTERS—Convair Toastmasters meet 4:30 p.m., each Wednesday. Dynamic Toastmasters meet 5:30 p.m. Thursdays.

VOLLEYBALL — Plant leagues now forming. Call Pete Beyrer, ext. 1111 for information.

Tennis Tournament Results Announced

Results of the CRA Tennis Club and Convair Management Association - sponsored tennis tournament that was concluded Feb. 14 at Mesa College have been announced by Bob Herold, Tennis Club commissioner.

Winners and finalists, listed by division, and scores were:

Men's advanced singles—Dennis Sealey, winner; Bob Herold, finalist; 27-25.

Men's advanced doubles—Cecil Norwood and Dennis Sealey, winners; Stan Griffin and Chuck Griffin, finalists; 27-17.

Men's intermediate singles—Manuel Fernandez, winner; Don McClarren, finalist; 4-6, 6-3, 6-3 set.

Men's intermediate doubles—Keith Rutledge and Guy Mabie, winners; Fred Halemba and Manuel Fernandez, finalists; 6-3 playoff.

Men's novice singles — Gary Blevins, winner; Jeff Griffin, finalist; 25-23

Men's novice doubles — Gary Blevins and Steve Pullman, winners; Bob Ankeny and Erich Wolf, finalists; 29-15.

Women's intermediate singles—Pat Brown, winner; Desta Blevins, finalist; 29-17.

Mixed doubles — Lorretta and Gary Blevins, winners; Gina Gladding and Tom Herold, finalists; 28-25.

Retirees to Hear Space Shuttle Talk

General Dynamics retirees attending a luncheon meeting of the recently formed Retirement Club at 11:30 a.m. Tuesday (March 9) in the CRA Clubhouse will hear Robert A. Lynch discuss the space shuttle program.

Eighty-five retirees attended a similar luncheon Feb. 9. Officers elected were Walt Bailey, president; Larry Sweeney, vice president; and Bud Becker, secretary-treasurer.

"The club will be primarily a social and mutual-interest organization," Bailey said. "Business will be held to a minimum."

Volleyball Rosters Due In By March 15

Departmental plant league volleyball teams are asked to send rosters to Pete Beyrer of the CRA staff, mail zone 131-70, by March 15.

League play will be scheduled Wednesdays beginning early next month at the municipal gym in Balboa Park. Equipment may be checked out at the gym for advance workouts on Wednesday evenings in the nearby Federal Building.

Beyrer said trophies will be awarded to the winning men's team if a six or eight-team league is formed.

A plant women's league will be formed if at least four teams are entered. Otherwise, women's teams will play in an Industrial Recreation Council women's league.

'Last Chance' Tickets Available Tomorrow

Tomorrow will be the last day for employes to purchase reduced-price $2 tickets for the 7 p.m. March 7 basketball game between the San Diego Rockets and Portland and an hour-long after-game hypnotism show by Dr. Michael Dean.

The tickets are on sale at all employe benefits and CRA ticket outlets.

"DOLPHIN" CARDS GIVE SEA WORLD DISCOUNT

"Dolphin Club" membership cards, providing a 15 per cent discount for admission to Sea World, are available for employes at employe benefits and CRA outlets. The cards also offer a year's subscription to "Southern California Holiday" magazine for $1.

Winners Named in Camera Club's First Quarterly Competition

Winners in the CRA Camera Club's first quarterly contest of the year, held in conjunction with the Feb. 21 meeting, have been announced by Al Oehler, president.

Clark Winsor and Bob Pettyjohn won in the black and white print division and K. K. Rinker, Pettyjohn, Dorothy Mildice, and Eric Wolf in the color slide competition.

All are to receive trophies and will have their quarterly winners entered in a year-end competition. Judge for the quarterly contest was Fred Jordan, a former professional photographer and veteran judge of camera club contests in the San Diego area.

Winsor's winning black and white print, "Mother's Love," was of a Russian mother and her two sons and was photographed at a recent Universal Studios' photo day. Pettyjohn's winner in the print division, "Half Dome," was photographed at Yosemite National Park.

Both of the black and white winners were printed at the club's photo lab in the CRA Clubhouse. The winning color slides all were developed by commercial film processing firms.

The CRA Camera Club meets at 7:30 p.m. the third Sunday each month in the Photo Arts Building in Balboa Park.

Horsemen Plan Gymkhana Show

CRA Riding Club has scheduled a gymkhana on March 21 in the Missile Park riding ring as its first major event of the year. Events, open to all interested horsemen, will begin at 8:30 a.m.

The club in its Feb. 10 meeting also scheduled an all - western show June 20 and fun shows for club members only April 18 and Aug. 15. A potluck dinner for members and their families will be held after the April 18 show.

Members have completed construction of five corrals at a new horse camp at CRA Pinecrest Park in the Cuyamaca Mountains. Tentative plans have been made for a club campout there over the Memorial Day weekend.

Membership in the Riding Club is open to all employe families at a minimal fee of $1 per family per year. Meetings are held at 7:30 p.m. the second Wednesday each month in the CRA Clubhouse.

Officers are Steve Berry, commissioner; Conrad Nash, president; Maylon Burden, vice president; Ruth Wallace, treasurer; and Shirley Berry, secretary.

Coin Collectors Elect Joan Noga

Joan Noga of Convair Aerospace-SD's Dept. 842-0 has been elected first woman president of the CRA Coin Club.

Other new officers elected by the Coineers at their February meeting are Steve Ames, vice president; Maxine Kinder, secretary; and Harry Jennings treasurer.

Installation of officers will be at a banquet April 10 in the Catamaran Hotel.

A "white elephant" sale has been scheduled in conjunction with the club's next meeting at 7:30 p.m. March 8 in CRA Clubhouse. Donations of usable items such as vases, jewelry, books, kitchen items, pictures, or bake goods are needed.

Theme for the month will be "mints" and "proof sets." A guest speaker is to be scheduled; refreshments will be served; and door prizes, a drawing, and an auction of coins is planned.

Kropp Again Tops In Pistol Points

Charles Kropp squeezed by Harry Black, 284 (10x) to 284 (6x), to take master class honors for the second consecutive time in CRA Pistol Club's Feb. 14 meet on the San Diego Police range.

Dick Sutton with 279 and Leon Thomas with 277 were top shooters in the expert class and James Thomas fired 229 for sharpshooter division honors.

Black reversed the standings in the center fire short national match, placing first with 266 while Kropp scored 259 for second.

Sq. Dancers Plan Beginners Course

Dynamic 8s, the CRA square dance club, will sponsor another beginners class from 8 to 10 p.m. Tuesdays beginning next week (March 9). Enrollments will be accepted at the first three class sessions.

Clark Elliott will be instructor. A donation of 50 cents per person for each session will be requested.

GULLS-SALT LAKE TICKETS AVAILABLE

Tickets for the San Diego Gulls hockey game with Salt Lake at 8 p.m. March 20 in the San Diego International Sports Arena are now on sale at $2.75 each (a 75-cent saving) at all CRA outlets.

50 Skiers Slide Sun Valley Slopes

Fifty skiers from the Convair-Don Diego Ski Club are on a week-long outing in Sun Valley, Ida., to try their technique on the mountainside ski slopes of that widely known winter resort.

Forty-five of the group left by chartered bus at 7 p.m. Friday (Feb. 26), had a two hour stop in Las Vegas, then had breakfast in Ely, Nev., and lunch in Jackpot, Nev., before reaching Sun Valley late Saturday afternoon.

Five others were to join them after flying or driving to Sun Valley. All are staying at the Challenger Inn and Anteliers.

Helen Navoy, one of the club's three leaders for the trip, said the Convair group plans to enter a downhill race today (March 3) and a giant slalom competition Friday. Those completing the two events within established time limits will receive silver sun and gold and silver ram pins, respectively.

Next outing for the Ski Club will be a March 12-14 weekend trip to June Mountain in the Sierras.

TOP TROPHY—Ray Behlman of Convair Aerospace-SD won perpetual and permanent trophies for jogging 2,835 miles last year in YMCA "run for your life" program.

Top City Runner Is Convair Man

Ray Behlman, a logistics analyst in Convair Aerospace-SD's Dept. 831-1, won the "runner of the year" perpetual trophy for having jogged 2,835 miles last year in the YMCA's "run for your life" program — more than any other runner in the city-wide program. He also received a small permanent trophy.

Last year was the third year for Behlman to win the perpetual trophy. He jogged 1,865 miles to win in 1967 and 1,500 miles to win in 1969.

Behlman started jogging to reduce weight six years ago and last year ran eight miles each day at the downtown "Y", in Balboa Park, or on a course in Mission Valley.

He ran every day last year—regardless of the weather—and missed jogging only on Christmas Day in 1969. Keeping a daily running log at the YMCA has provided the "challenge" to keep jogging each day.

Behlman also is past president of Convair Toastmasters Club 3745 and serves as an umpire for CRA plant softball leagues in his off-duty hours.

Careful Advance Planning Needed For Fast, Efficient 'Breakaway'

(The technique of a champion in any field is worth admiring and this—contributed anonymously—has all the marks of a "Tip From the Top.")

Many never learn how to break away from their jobs at quitting time. Millions remain caught in the vast network of production for an extra minute or two each day. Some even linger as long as three or five minutes, simply because they lack efficiency. It is to these listless hordes that I direct a few hints.

And let me say that I am regarded as something of an authority. Over a long period of years I have faltered just twice. There was the rainy day in 1946 when I forgot my rubbers and had to dash back—a loss of 30 seconds. There was the day I made the error of mumbling "goodnight" to the boss and he asked me about the wife and kiddies. A full minute slow. On no other occasion have I been guilty of dallying around, using up extra light and adding to the wear and tear on equipment. How some persons offend in this manner and still stay on good terms with the company, I cannot say.

Here are some tips on how others might emulate my record. The first point is rudimentary. Always hang your hat and coat in a direct line between your location and the door. This obviates the necessity of working the last few minutes with your hat on. A little practice and you'll be able to grab both hat and coat without breaking your normal running stride.

Nothing is more despicable than a clock watcher. Always synchronize your watch with the wall clock in mid-afternoon and pay no attention to the wall clock thereafter. If you work at a desk, start cleaning up 20 minutes before quitting time, but be subtle. An accomplished quitter can make it look as though he is regrouping for considerable more work. Roll sleeves down one fold at a time. Nobody will notice the gradual change, and you'll have the entire final minute for fastening cuffs as you watch the second hand.

If you work with heavy tools, always lean well forward during the closing stages. A tool dropped suddenly on the toes can be painful and leave you with a limp just when speed afoot is most essential.

Admittedly I have not revealed everything. Right in my office there are a few talented individuals who, if they knew all the secrets, might seize leadership in the field.

Financial Status For '70 Detailed by David Lewis

For the year ended Dec. 31, 1970, General Dynamics Corporation sustained a net loss of $6,506,000, equivalent to 62 cents per common share, on sales of $2,223,643,000, David S. Lewis, Chairman of the Board, announced. In 1969 the company reported earnings of $2,531,000, equivalent to 24 cents per common share, on sales of $2,508,755,000.

Lewis said that the figures for the year reflected actions taken in setting up reserves and writing off losses after an assessment by the company of all of its contracts and their potentials.

"We recognized," he said, "a number of uncertainties in the government's requirements for defense and space systems in the future, and this led us to review all of our government-oriented business and to make stringent assumptions concerning our work on uncompleted contracts and the possibility of additional orders on each of these programs."

Lewis outlined the performance of the company's seven main lines of business as follows:

Summary of sales and earnings by line of business, in thousands:

	1970	1969
Sales:		
Marine	$ 372,363	$ 269,428
Military aircraft and space programs	1,289,008	1,666,088
Tactical missiles	147,257	192,709
Commercial aircraft	39,418	31,912
Resources	212,326	195,855
Telecommunications	135,612	126,455
Data products	27,659	26,308
	$2,223,643	$2,508,755
Operating profits (losses), net of taxes:		
Marine	$ 2,927	$ (45,374)
Military aircraft and space programs	12,580	38,036
Tactical missiles	(15,903)	1,906
Commercial aircraft	(3,889)	(4,931)
Resources (less minority interest)	14,862	13,950
Telecommunications	7,814	7,686
Data products	(12,095)	(5,676)
	6,296	5,597
Deductions (income) not allocated to lines of business, net of taxes:		
Interest	$ 9,415	$ 7,899
Other, net	3,387	(4,833)
Net income (loss)	$ (6,506)	$ 2,531

Lewis commented on 1970 performance as follows:

MARINE—our submarine work was reasonably profitable during the year. The award of a $428 million contract in early 1971 for seven of the new 688-class attack submarines raised our submarine backlog to an all-time high. This award will assure continuation of the Electric Boat Division's important activities for many years to come.

Our Quincy Shipbuilding Division continued to deliver surface ships to the U.S. Navy on an acceptable schedule. Large write-offs have been taken against these unprofitable contracts in prior years. It is expected that additional significant cost overruns will occur on these ships and also on three commercial ships in production. On the other hand, we believe we have meritorious claims against the government which should yield contract price adjustments equal to or greater than the anticipated future cost overruns. In 1970 these claims were booked as a credit to the extent that reserves have not been set up against the anticipated cost overruns.

MILITARY AIRCRAFT AND SPACE PROGRAMS — results for the year include increased earnings from space programs and reduced earnings on the F-111 program. The earnings accrual rate on the F-111 was reduced because of the large amount of work on the program that is authorized but whose value has not been negotiated with the government.

The amount of our unnegotiated work was so large it was decided that the earnings accrual rate on this contract be retroactively reduced through the life of the program.

TACTICAL MISSILES — most of our tactical missile programs, including production of the Standard Arm and Redeye missiles, are profitable, but we foresee losses on the Standard Missile program of such magnitude as to make this line of business unprofitable for this year. In 1970, we provided a reserve of $40 million ($20 million after taxes) to recognize anticipated costs in excess of contract price on the current Standard Missile program. This contract covers deliveries through 1973. The company is evaluating possible claims against the government it may have under this contract. We have contracted to furnish Standard Missiles to certain NATO nations and, in addition, we expect that we will receive additional orders from the U.S. Navy. We believe that this work can be performed on a profitable basis.

COMMERCIAL AIRCRAFT — work is progressing on schedule on construction of the fuselage of the DC-10 jetliner. We have elected to book no profit on deliveries until the number of fuselages ordered by the prime contractor, McDonnell Douglas Corporation, exceeds the estimated break-even quantity on the contract. At the same time, we are writing off all general and administrative costs as they occur, which in 1970 totaled approximately $3.5 million.

RESOURCES — earnings for these operations, which produce building materials, coal, lime, brick and asbestos, continued to increase in 1970 despite the generally depressed level of construction activity in their major markets. Substantial capital investments made during the year should insure the profit potential of this group for the future.

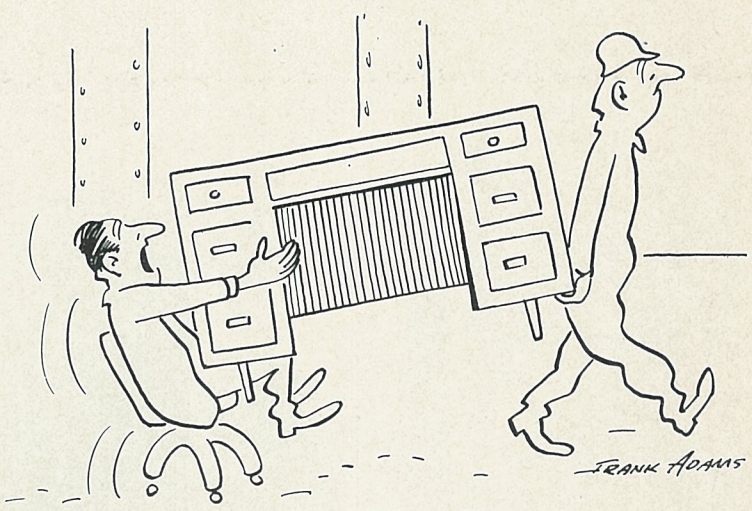
TELECOMMUNICATIONS — our Stromberg-Carlson subsidiary continued its growth as a leading manufacturer of telephones and telephone switching, transmission and control systems for the independent telephone industry. Sales and earnings for this important part of our company increased for the sixth consecutive year.

DATA PRODUCTS — for the first six months of 1970, the adverse effect of DatagraphiX on consolidated income was $14.1 million (pre-tax). Operating results were substantially improved during the second half of the year; however, at year end, we identified an additional inventory write-down on equipment and related parts which were acquired in earlier periods of anticipation of a significantly higher level of sales than developed.

In summing up, Lewis said, "General Dynamics is fortunate that it has a strong base of consistently profitable commercial work, exemplified by our resources and telecommunications businesses, from which we can expand to produce greater growth and profitability in the future.

"At the same time, our decision to make a conservative appraisal of existing contracts at the end of 1970 should not obscure the fact that we still have, and expect to maintain a strong position in our traditional lines of endeavor —design and production of aircraft, ships, submarines, tactical missiles and space systems for the government.

"We believe we have a strong company and the steps we have taken in 1970 should put us in a good position for the future."



"That's good . . . now about 50 feet to your left . . ."

20 Years Ago, Walnuts Gave Way to Missiles

Monday (March 1) marked the 20th anniversary of Pomona operation of Electro Dynamic Division, a leading developer of tactical weapons and the nation's first completely integrated facility for research, development, testing and manufacture of tactical missiles.

Convair (which later became a part of General Dynamics) first entered the missile business in 1945, and during the period from that year until 1949 worked at San Diego on several small contracts for development design and limited production.

By 1950 experimental designs were so successful that Convair, along with other manufacturers, was asked to submit proposals for quantity production of air defense missiles, and to establish a Naval Industrial Reserve Ordnance Plant capable of large-scale production. The Convair proposal was accepted early in 1951, and a new operating unit — designated Convair Division Number Three — was established on March 1 of that year.

The new division immediately started operating at San Diego's Plant Two, which had been declared surplus and sold following World War II. The facility was rented and reactivated for temporary quarters.

Several prospective sites were considered, before a walnut grove on the western edge of Pomona was selected and land purchased April 4, 1951.

Following ground breaking in August, developments started at a rapid pace. A warehouse was rented that month in downtown Pomona to take care of early equipment arrivals, and the following month another building in downtown Pomona was rented to house facilities, planning engineers and industrial relations personnel. This building, since demolished, was located on East Second Street, and was called "The Annex."

Three buildings at the Los Angeles County Fairgrounds were rented in October, 1951, and production equipment moved there that month. In meantime, the first tactical prototype missile had been produced at San Diego.

By April, 1952, construction on the new Pomona plant had progressed to the point that a special "Task Force" was assigned to the site to make necessary local decisions on various construction problems. This group was located in a temporary structure called "Splinterville" (removed in 1969 for additional parking space in lot north of Second Street).

Contract for use of the Fairgrounds buildings expired in August, 1952, and personnel and facilities moved into the partially completed Bldg. 4. Six days after the building was occupied, initial manufacturing operations were started—on Sept. 1, 1952.

Largest transfer of personnel and equipment from San Diego to Pomona took place early in 1953 and the highway between the two cities was traveled 24 hours a day by vehicles associated with the move. By April, 1953, some 1,200 employes and their families had relocated.

For all intents the plant was completed in July, 1953, when Bldg. 2, the manufacturing building, was activated and occupied. The plant was the first in the country ever designed and built as a guided missile production facility. At that time, it consisted of 20 separate buildings, totaling 1,286,000 square feet, built on five parcels of land totaling 141 acres. Since then a number of warehouse buildings have been added to the Navy facilities. In 1965 General Dynamics Corporation completed a building with 100,000 square feet of engineering office and laboratory space. This company building is located on Corporate-owned property adjacent to the Naval Industrial Reserve Ordnance Plant.

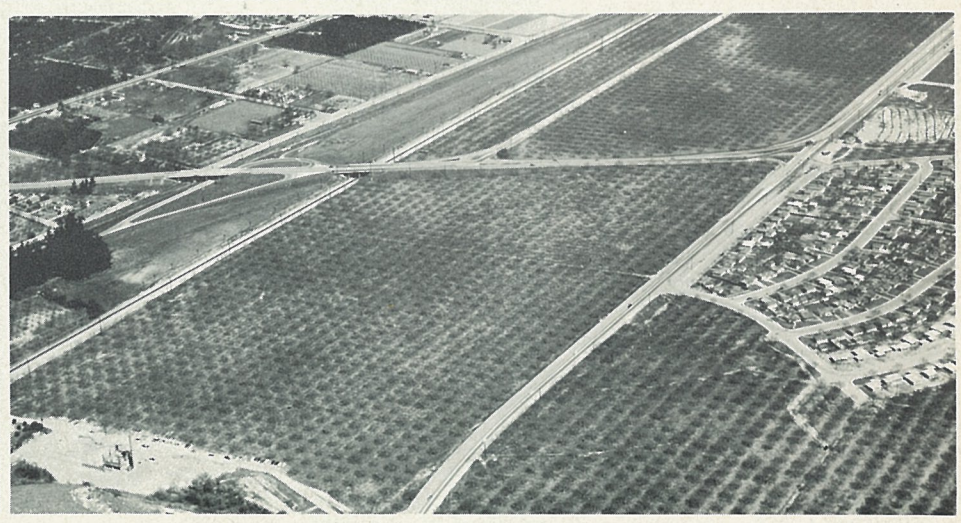
Catfish Grows Up In Quiet Solitude

H. D. "Bud" Clark of Fort Worth operation evidently has discovered a new fishing hole.

While flushing a water main, out came a 12-inch catfish!

Clark theorizes that the fish entered as a fingerling and subsisted in the meantime on algae, ultimately becoming too large to go out the way he came in, through a couple of pumps and a strainer.

J. E. McInnis was a witness.



1951-1971—Convair Division Number Three, now Pomona operation of Electro Dynamic Division, was established March 1, 1951. Aerial photos show area in walnut groves in 1951 and a score of years later as home of Naval Industrial Reserve Ordnance Plant operated by General Dynamics for Naval Ordnance Systems Command. Bellevue is across center in both views. Early in 1952 engineering test laboratories were temporarily quartered at Los Angeles Fairgrounds.

SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

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Craftsmanship Performance Award Earned

Convair Aerospace-SD was scheduled to receive its second Sustained Craftsmanship Performance Award under the Air Force Zero Defects Program in ceremonies yesterday at the Lindbergh Field plant.

Lt. Gen. Earl C. Hedlund, director of the Defense Supply Agency with headquarters in Alexandria, Va., was to present the award and an accompanying banner and citation to Lyman C. Josephs, vice president and general manager of the San Diego operation.

Among other military officials and dignitaries scheduled to attend were Brig. Gen. John S. Chandler, commander of the Defense Contract Administration Services Region-Los Angeles; Brig. Gen. Robert Duffy, deputy commander of the Air Force Space and Missile Systems Organization; and Frank Davis, Convair Aerospace Division president.

Selected employes from the Kearny Mesa plant and Air Force Plant 19 were taken to Lindbergh Field by charter bus for the ceremonies, held at 10:30 a.m. on the roof of the plant cafeteria building.

W. E. Magnuson, chairman of the Convair Aerospace-SD Craftsmanship program, was master of ceremonies.

Other participants were to include Col. Charles Merz, commander of the San Diego DCAS district; Capt. Vern Karlin of the DCAS office at Convair; Richard Jumont of the NASA-Lewis representative's office at Convair; L. I. Medlock, director of reliability control for Convair Aerospace-SD; and K. E. Newton, director of launch vehicle programs.

The second Sustained Craftsmanship Performance Award was the fifth award in the Air Force's Zero Defects Program to be earned by the San Diego operation. Other awards received in previous years included the Zero Defects Participation, Achievement, Craftsmanship, and first Sustained Craftsmanship Performance awards.

"Each of the Sustained Craftsmanship Performance awards received by Convair Aerospace-SD is indicative of the fact our employes are continuing to maintain the high standards of quality, management, and economics

(Continued on Page 2)

ENGINEER OF YEAR — Dr. Hideo Yoshihara receives Convair Aerospace-SD 1970 Engineering Achievement Award and $500 honorarium from Lyman Josephs, left, vice president and general manager, and personalized gold medallion from R. E. Adams, right, vice president-research and engineering.

Engineering Award Goes to Yoshihara

Dr. Hideo Yoshihara, engineering staff specialist on the staff of the director of engineering technologies, has been presented the Convair Aerospace-SD 1970 Engineering Achievement Award for his work on new concepts of airfoil design for improved transonic cruise and maneuvering capability of aircraft.

As the San Diego operation's "Engineer of the Year," he received the Engineering Achievement Award plaque, a $500 check, and an engraved gold medallion from Lyman Josephs, vice president and general manager, and Richard E. Adams, vice president-research and engineering.

Winners of Engineering Achievement Awards from each of the General Dynamics operating units will be candidates for the Corporate Design Achievement Award and a $1,000 honorarium.

"Transonic flow problems long have been a stumbling block to the rational design of aircraft operating in the vicinity of Mach 1," Adams said.

"Dr. Yoshihara and his coworkers achieved a major breakthrough in this field by devising a unique numerical procedure to calculate exactly the flow field around an airfoil at transonic speeds and the effects of variations of airfoil parameters. The airfoil concepts introduced by Dr. Yoshihara afford substantial gains in transonic cruise and maneuvering capabilities for both commercial and military aircraft."

Dr. Yoshihara's research led to an aircraft wing design that involves "humping" the aft upper surface that will delay the onset of buffeting when the aircraft nears supersonic speed.

This will increase the maneuvering ability of fighter aircraft and permit increased speed at reduced operational cost for commercial aircraft operating near the Mach 1 level.

Results of Dr. Yoshihara's studies have been provided to the Fort Worth operation for application in some of its programs and may be used in design of a Navy high performance attack aircraft and the advanced-technology transport.

Adams also cited Dr. Yoshihara for pioneering investigation that has "yielded highly fruitful results" in the adaption of jet-flaps to aircraft—also to improve the transonic profile by increasing drag divergence and alleviating transonic buffeting at near Mach 1.

This will involve channeling of engine by-pass air through the wing and out through nozzles at the trailing edge on the lower wing surface to increase the amount of lift.

An airfoil (wing section) model incorporating the Yoshihara design has been tested at higher Reynolds numbers in the Canadian National Aeronautical Establishment's two - dimensional

(Continued on Page 2)

New Interactive Graphics System Developed by Electro Dynamic-SD

Electro Dynamic-SD engineers have developed a highly versatile interactive graphical display system that, used in conjunction with any type of computer, can permit work with graphic displays on a direct-view cathode ray tube screen while simultaneously displaying the activity for group audiences on large screens up to 8 by 8 feet.

The two units included in the high-performance system are an Interactive Display System (IDS) and a Real-Time Projector (RTP), each designed with a variety of interchangeable low-cost plug-in modules to accommodate a wide range of specific customer requirements.

"Applications for either or both units are as numerous as the needs for graphical data processing," James H. Redman, manager of marketing display systems, said.

"With a comprehensive set of graphic subroutines (computer programs), some of which are now being developed, the system will provide the highest state-of-the-art and most versatile capability on the market."

The IDS, utilizing a cathode ray tube, provides track-ball, light pen, alphanumeric key set, selective image-modifier aids, and other devices to enable the engineer or technician in working on technical problems as simple as schematic drawings or as complex as electronic circuitry design.

The light pen, for example, can be used to "type" letters or numbers as well as draw on the display. A "repeat" function provides rapid repetition of previously created designs. A wide variety of other such functions also may be implemented.

The RTP, working separately or with the IDS, provides front or rear-view projection and can be equipped for multi-color displays or for combined digital and television displays.

(Continued on Page 4)

Shamrocks Will Be in Evidence At Mgt. Association Gathering

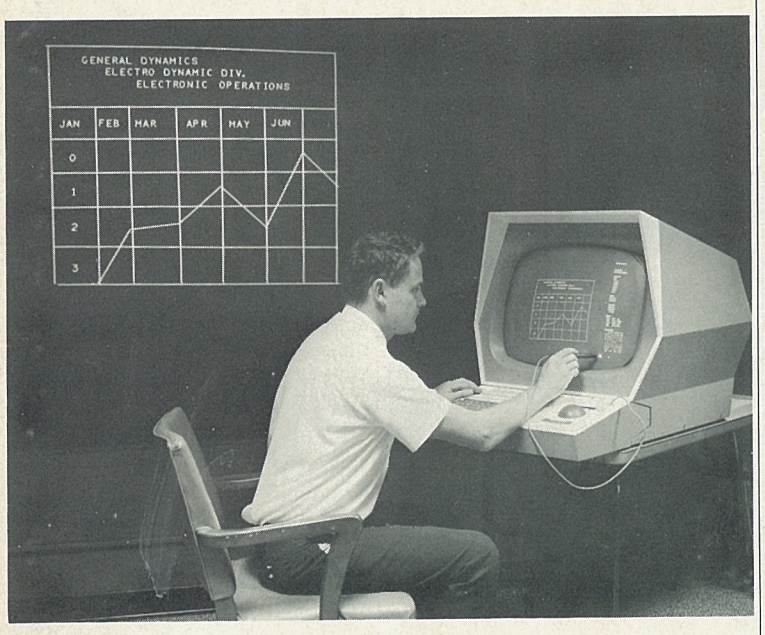
Today is St. Patrick's Day and members attending Convair Management Association's meeting this evening in the Catamaran Hotel will be both giving "the green" and wearing "the shamrock" in keeping with custom.

Those parting with "greenbacks" for the traditional raffle to raise funds for scholarships will receive simulated shamrock pins from three pretty Convair Aerospace-SD employes who also are members of the association—Carol Owens, Doris Fazio, and Kathy Solomon.

Featured speaker for the meeting will be M. C. Frishberg, general manager of product marketing and services for Control Data Corp. in Minneapolis, who will discuss "The Management Sciences—Friend or Foe?"

Spotlight speaker will be Sam Winram of Quincy Shipbuilding Division who will describe General Dynamics proposed 1,020-foot nuclear powered submarine tanker for transportation of oil from the Arctic to ice-free North Atlantic ports. A nine-foot model of the proposed vessel will be displayed.

The meeting will be sponsored by the reliability control department with L. I. Medlock, director, as executive sponsor.



GRAPHIC VERSATILITY — Roger Wileman, an Electro Dynamic-SD design specialist, uses light pen in creating display with new Interactive Display System. Graph on screen also is projected on large screen display at left through use of companion Real-Time Projection unit.

Managers Named In Two Departments

Several new assignments in Convair Aerospace - SD's operations and material departments have been announced by Lyman C. Josephs, vice president and general manager.

Reporting to J. M. Adamson, director of operations, are R. G. Daly, factory manager; C. F. Blair, manager of performance improvement and plant modernization; W. E. Wise, manager of plant services which combines industrial engineering and plant engineering; and V. F. Cernuto, manager of production control. Cernuto is returning to San Diego from the Fort Worth operation.

Reporting to H. E. Moose, director of material, are R. D. Robbins, manager of material operations which includes raw stores, first-cut, and traffic and shipping; L. A. Woods, manager of outside production; and R. N. Babcock, who continues as manager of major subcontracts in support of the space shuttle program.

CUSTOM AIDES — Three feminine members of Convair Management Association show L. I. Medlock, Convair Aerospace-SD director of reliability control, how they will provide shamrock pins for members buying scholarship raffle tickets at tonight's meeting. Girls, from left, are Carol Owens, Doris Fazio, and Kathy Solomon.

RFPs Expected In August for Shuttle Studies

Charles J. Donlan, acting director of the space shuttle program for NASA's Office of Manned Space Flight in Washington, told aerospace personnel attending a NASA Space Shuttle Technology Conference March 2-4 at Langley Research Center that he expects the request for proposals for space shuttle vehicle Phase C preliminary design studies to be released in August.

Donlan said a contract for the Phase C design and preliminary development is expected to be awarded in March, 1972, and that first manned orbital flight of the space shuttle is targeted for 1978.

Other NASA officials attending included A. O. Tischler, director of shuttle technologies for the NASA Office of Advanced Research and Technologies in Washington, and E. M. Cortright, director of the Langley center.

Eighteen from Convair Aerospace Division were among 500 persons, mostly NASA and contractor representatives, attending the technology conference.

Presentations were given by five from Convair Aerospace-SD. Included were papers on "Shock interference heating on the space shuttle booster during ascent" by Dr. Ola Brevig, "Space shuttle separation system" by Frank Jarlett, "Booster wing geometry trade studies" by Jerry Butsko, "The heat sink thermal protection system concept for the booster" by Jack Prunty, and "Space shuttle modal suppression load study" by Bernard Kuchta.

Fritz Krohn, also of Convair Aerospace-SD, was on a technical panel on space shuttle structures and materials design technology. He gave an overview of materials and their applications.

Others from Convair Aerospace-SD attending included Lou Payne, Erwin Naumann, Ed Huggin, Dick Nau, G. H. Schadt, Randy Kent, Jack Jensen, George Vila, and Mike Dublin. Attending from Convair Aerospace-FW were R. L. Haller, J. Redmond, and R. Stevens.

* * *

Three aerospace engine firms that have been performing preliminary design studies have been asked by NASA's Marshall Space Flight Center to submit proposals by April 21 for design and development of main engines for the space shuttle booster and orbiter vehicles.

They are Aerojet General Liquid Rocket Co., Pratt and Whitney Division of United Aircraft Corp., and Rocketdyne Division of North American Rockwell Corp.

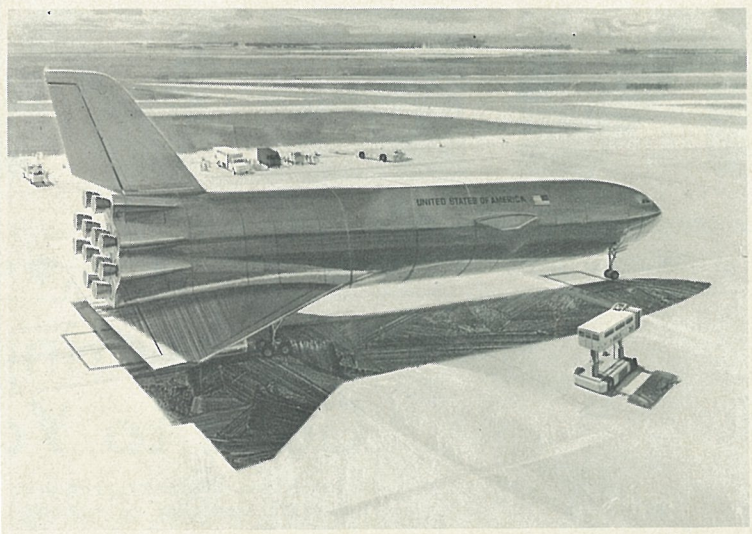
NASA officials said one of the companies is expected to be selected for development of the engines and a contract negotiated by mid-summer. The main engine is considered a "pacing item" in shuttle development.

The same basic engines are to power both shuttle stages, although the orbiter vehicle's engines will have a longer exhaust nozzle. The engines will burn liquid hydrogen and liquid oxygen and may be gimballed in flight for control purposes.

Shuttle booster vehicles are to have 12 main engines, each of about 550,000 pounds thrust, to lift the booster and orbiter to about 250,000 feet altitude for orbiter vehicle seperation.

The orbiter will continue into orbit under the power of its two main engines, each with about 632,000 pounds thrust in the vacuum of space in which they will operate. The booster engines are to weigh about 7,400 pounds and the orbiter engines about 8,800 pounds.

Each of the shuttle booster and orbiter evhicles also are to have separate air-breathing engine systems for return flight within the atmosphere and will fly back for landing much like conventional airliners.



SHUTTLE SCENE — Artist's concept shows space shuttle booster, immediately after return from mission, in safing area where remaining propellants would be removed as first step in a two-week inspection and maintenance cycle in which the booster would be prepared for another launch.

First Intelsat IV Expected To Be 'on Station' This Week

The International Telecommunications Satellite Consortium's first Intelsat IV communications satellite, launched into transfer orbit with "spectacular precision" Jan. 25 by Convair Aerospace-SD's Atlas-Centaur 25, was expected to be "on station" in synchronous orbit over the Pacific this week.

Frank Anthony, assistant chief engineer - flight mechanics for Convair Aerospace - SD's launch vehicle programs, said COMSAT spacecraft tracking network measurements indicated the Atlas-Centaur released the satellite into a transfer orbit with a perigee altitude of 26.027 nautical miles and an apogee altitude of 19,397.290 nautical miles.

This was within .014 and 6.138 nautical miles, respectively, of targeted perigee and apogee altitudes.

Larry Hastings of the COMSAT Headquarters information office said Intelsat IV's solid-fuel apogee motor was fired at the third transfer orbit apogee which placed the satellite into near-circular orbit over the Pacific. Since that time, the satellite has been drifting toward its permanent "station" over the Atlantic.

"The Intelsat IV has been undergoing testing and refinement of its orbit during this period," Hastings said. "Reports from our technical personnel are that it looks fine."

The Intelsat IV will have 40 times more communications capability than a trans-Atlantic cable.

The next satellite in the Intelsat IV series is scheduled for launch this summer by Convair Aerospace-SD's Atlas-Centaur 26.

Craftsmanship Award Earned

(Continued from Page 1)

that led to the first Craftsmanship Award," Medlock said.

"The Sustained Craftsmanship Performance Award is the highest recognition given in the Zero Defects Program."

General Hedlund, a command pilot with a Ph.D. from the University of Illinois, has been director of the Defense Supply Agency since 1967 and previously had served as deputy director.

He earlier had been commander of the Warner Robins Air Materiel Area, deputy director of the Ogden Air Materiel Area, deputy director of transportation at USAF Headquarters, director of transportation for the Far East Air Forces, and chief of the Air Transport Division at USAF Headquarters.

General Hedlund flew 170 missions as a fighter pilot and served as a squadron, group, and deputy wing commander during World War II. He was captured by the Germans after his P-38 was shot down in 1945 but later escaped and made his way back to American lines.

Among his many decorations are the Distinguished Flying Cross, Legion of Merit, Distinguished Service Cross, Purple Heart, Air Medal, British Distinguished Flying Cross, French Croix de Guerre, and Belgium Fourragere.

You can buy U. S. Savings Bonds regularly for as little as 50 cents a week.

Shuttle Safety Briefing Held

I. Irving Pinkel, director of the Aerospace Safety Research and Data Institute at NASA's Lewis Research Center, was at Convair Aerospace - SD's Kearny Mesa plant March 5 for a briefing and discussion on the division's space shuttle booster system safety program.

The Aerospace Safety Research and Data Institute provides a space and aviation safety data bank for use by military and governmental agencies and government-contractor firms and serves as a coordinating agency for aerospace safety studies.

Also present for the briefing was John Gera, director of safety for North American Rockwell's Space Division and its space shuttle program. Henry Nulton, who has responsibility for safety for the shuttle program for Convair Aerospace, was host.

Pinkel was welcomed by Dr. Donald Dooley, vice president and space shuttle program director for Convair Aerospace-SD. He was briefed on overall status of the shuttle program by Davy Jones; on the booster system safety program by Nulton; and on status of an abort study, also part of the overall booster system safety program, by Chris J. Cohan.

SAFETY SESSION — Conferring on space shuttle system safety recently at Convair Aerospace-SD, from left, were I. Irving Pinkel, director of Aerospace Safety Research and Data Institute; Henry Nulton of Convair Aerospace-SD; and John Gera, director of safety for North American Rockwell Space Division. Painting in background is of space shuttle booster returning for landing.

Atlas-Centaur Role Seen In Satellites Launch

Communications Satellite Corporation (COMSAT) early this month filed a proposal with the Federal Communications Commission (FCC) for establishment of a multi-purpose domestic system to provide a wide range of communications services to customers throughout the United States through three synchronous-orbit satellites and an initial network of 132 earth stations.

COMSAT representatives said Atlas-Centaur launch vehicles, produced by Convair Aerospace Division in San Diego, or a similar type of launch vehicle would be used to launch the high-capacity 1,600-pound satellites.

The satellites, expected to be about 19 feet high and nine feet in diameter, would be designed for a seven-year lifetime and would handle all types of high-quality communications including telephone, data service, and TV programming for a wide range of customer organizations.

Beams from the satellite antennas would provide coverage of the 48 contiguous states, Alaska, Hawaii, and Puerto Rico. Each satellite would carry 24 transponders (radio repeaters) and, working with 97-foot-diameter earth station antennas, could carry about 14,400 telephone circuits, more than 100 million bits of digital information, 24 color TV channels, or a combination of the three.

COMSAT last October also filed a proposal with the FCC for a three-satellite communications system to meet domestic needs of the American Telephone and Telegraph Company (Bell Telephone System). It would be used in conjunction with AT&T's own ground stations and distribution systems.

"We expect Atlas-Centaur to be a strong contender as launch vehicle for satellites in either or both of the domestic systems if they are approved by the FCC," said Pat O'Leary, manager of program development for Convair Aerospace-SD launch vehicle programs.

"Atlas-Centaur currently is being used for launch of Intelsat IV commercial communications satellites for the International Telecommunications Satellite consortium with COMSAT providing launch service management for the 77-member nations. Eight Intelsat IV launches are currently planned through early 1974. Size and weight characteristics of the domestic satellites proposed by COMSAT would be similar to those of the Intelsat IVs being launched."

COMSAT's three-volume proposal for the multi-purpose communications system calls for procurement of four satellites—two for full-time orbital use, one for an orbital spare, and one for ground spare.

The satellites would operate in presently assigned commercial microwave frequencies in the 4 and 6 gigahertz (billion cycles per second) range to take advantage of known technology and readily available components.

As a major design feature, COMSAT has developed the first commercial satellite application of a technique called cross polarization for doubling of satellite communications capabilities.

This permits, for example, sending of 12 TV channels in a given bandwidth between horizontal antennas in the satellite and earth stations and an additional 12 channels on the same bandwidth between vertical antennas in the satellite and earth stations.

Although COMSAT said it would be impractical to file applications at this time for all 132 initial earth stations in the system, detailed construction applications were submitted for the first five.

Included were plans for major stations at Southbury, Conn., to serve the New York City area and near Santa Paula, Calif., to serve the Los Angeles area. Each would be equipped with 97-foot-diameter sending and receiving antennas and a 42-foot antenna for satellite tracking and control duties.

The other three stations for which construction applications were included would be in Alaska.

One receive-only 42-foot antenna for TV distribution would be at COMSAT's present Bartlett station near Talkeetna, about 90 miles northwest of Anchorage. Two send-and-receive stations with 32-foot antennas would be near Juneau and at Prudhoe Bay on the North Slope as the first steps toward providing intrastate and interstate Alaska communications via satellite.

COMSAT officials said applications for the other earth stations will be filed as discussions are concluded with major potential users for initial service, including the TV networks and large-carrier companies.

The system proposed earlier to the FCC by COMSAT to serve AT&T is being amended to call for launch of three satellites, two for full-time in-orbit use and one as a spare.

Stationed in synchronous orbit 22,300 miles above the equator and with antennas focused on the U.S., satellites in this system also would operate in the 4 and 6 gigahertz range. Each would have a capacity of about 10,800 voice-grade circuits, 24 color TV channels, or a combination of the two.

COMSAT representatives said the recently proposed multi-purpose communications system ultimately could involve an investment of about $248 million and that COMSAT investment for the system to serve AT&T may be about $145 million. No government funds would be involved in development or operations of either of the two commercial systems.

Engineer Award Winner Named

(Continued from Page 1)

high-pressure wind tunnel in Ottawa, Ontario, with up to 14 tons of lift being applied and theoretical calculations being verified.

Dr. Yoshihara has been with Convair Aerospace - SD for 14 years and as staff assistant to the director of engineering technologies also is consultant on all phases of fluid dynamics. He previously had served as manager of space sciences, acting chief of areodynamics, and chief of fluid dynamics research.

He was chief of theoretical aerodynamics in the aircraft laboratory at Wright Field, Ohio, from 1946 to 1956. He is the author of many publications on fluid dynamics and is an associate fellow of the American Institute of Aeronautics and Astronautics.

General Dynamics is an Equal Opportunity employer.

People Mobility

Personnel Transfers Within GD

(Following are recent personnel transfers within General Dynamics. In parentheses are dates when individuals joined the company.)

GEORGE A. MALMGREN JR. (1931) from Electro Dynamic-Rochester to ED-SD as engineering manager; **ROBERT H. SPARKS** (1957) from ED-Roch. to ED-SD as section head; **GERALD S. DAME** (1969) from Convair Aerospace-SD to engineer, ED-SD; **DAVID B. DEWEY JR.** (1962) from Convair-SD to ED-SD as electronics engineer; **ROBERT W. FASSLER** (1951) from Convair-SD to program coordinator, ED-SD; **NICHOLAS G. COLOVUS** (1968) from Corporate Headquarters to senior financial analyst, ED-SD; **JAMES A. LEVINS** (1963) from Corporate Headquarters to ED-SD; **WILLIAM G. GERKEN** (1959) from ED-Roch. to ED-SD as principal engineer; **HELMUT K. GOEBEL** (1959) from ED-Roch. to engineering section head, ED-SD; **ROBERT H. KIRKHOPE** (1960) from ED-Roch. to principal engineer, ED-SD; **RALPH MENDEL** (1969) from ED-Roch. to ED-SD as manager of marketing; **KENNETH L. GIDDINGS** (1955) from Convair-SD to design specialist, ED-SD; **JOSEPH N. CLARKE** (1956) from Convair-SD to engineer, ED-SD; **DONALD J. GALLAGHER** (1958) from Convair-SD to ED-SD as material liaison representative; **DAVID J. FRYE** (1956) from Convair-SD to senior engineer, ED-SD; **RICHARD T. GAUGHEN** (1954) from Convair-SD to ED-SD as senior buyer; **ORISON WADE** (1948) from Convair-SD to ED-SD as chief engineer; **PAUL R. WILLIAMSON** (1960) from Corporate Headquarters to Stromberg DatagraphiX as manager of budgets; **ELMER R. GAUTHIER** (1950) from Convair-SD to principal engineer, ED-SD; **PETER M. HALLWARD** (1967) from Convair-SD to ED-SD as a buyer; **JERAULD N. MATTSON** (1952) from Convair-SD to ED-SD as manager of employe relations; **JOE E. TERRAMAGRA** (1952) from Convair-SD to senior logistics program coordinator, ED-SD; **DAVID F. JENKINS** (1959) from ED-Roch. to ED-SD as project systems manager.

LEE R. HIXON (1955) from Convair-SD to design specialist, ED-SD; **EDWARD D. SCHMIDT** (1964) from ED-Roch. to senior engineer, ED-SD; **STANFORD T. BRUCKER** (1955) from ED-Roch. to section head, ED-SD; **DARRYL D. DHEIN** (1965) from ED-Roch. to principal engineer, ED-SD; **GEORGE PHILLIPS JR.** (1968) from ED-Roch. to ED-SD as engineering section head; **ON-CHING YUE** (1968) from ED-Roch. to engineer, ED-SD; **RUSSELL J. BJORSTROM** (1952) from Convair-SD to senior engineer, ED-SD; **VERNE E. BOYER** (1942) from Convair-SD to ED-SD as engineering manager; **FRED D. BREUER** (1957) from Convair-SD to design specialist, ED-SD; **ARTHUR C. RICHARDS** (1950) from ED-Pomona to ED-SD; **EUGENE AGALIDES** (1958) from ED-Pomona to Convair-SD as staff scientist; **WILLIAM J. DELAFONT** (1956) from Convair-SD to ED-SD as electronics project engineer; **ARTHUR L. JENKINS** (1963) from Convair-SD to senior engineer, ED-SD; **EDWARD R. MINTON** (1962) from Convair-SD to ED-SD as cost estimator; **ERIC R. WOODS** (1952) from Convair-SD to engineering specialist, ED-SD; **ROY WOODLE** (1957) from Convair-SD to principal engineer, ED-SD; **ROBERT F. DEVEREUX** (1956) from Convair-SD to ED-SD as engineering manager; **FRANCIS G. BRICKSON** (1954) from Convair-SD to ED-SD as senior engineer; **GERALD K. TOYEN** (1965) from Convair-SD to ED-SD as senior engineer; **BENNETT WEINBAUM** (1957) from Convair-SD to design specialist, ED-SD; **PAUL W. MORENZ** (1966) from Convair-SD to ED-SD as engineering manager; **KENNETH N. JONES** (1956) from Convair-SD to ED-SD as design specialist; **GEORGE W. JACOBSEN** (1957) from Convair-SD to buyer, ED-SD; **ARTHUR J. MASON** (1961) from Convair-SD to senior engineer, ED-SD.

Wall Came Down

Earthquake a Rough Experience For DatagraphiX Family in L.A.

Ted Downs, a DatagraphiX systems support representative working out of the Los Angeles sales office, his wife Jeannine and their three children were one of many unfortunate families who sustained property damage during last month's earthquake.

The Downs family, residents of Sylmar in the hard hit San Fernando Valley, was asleep when the quake struck. Ted and his wife led four-year old Alicia, Tammy Lynn, 6, and Julie, 8, outside to safety and Downs immediately shut off the gas supply to prevent explosion of the twisted supply pipes.

"We just stood around and shook like everything else in the area," Downs reported. "Everything in the house that was breakable, broke," he said.

A 200-foot concrete block wall surrounding the Downs residence of three years collapsed and a brick fireplace tore loose from the house and foundation. Structural damage inside and out was over $4,700 with another $1,500 estimated as possessions loss.

Although the Downs family never left their home after the earthquake, the area was without utilities for over a week. Warren Patterson, DatagraphiX western district service manager, loaned his camper and the DatagraphiX Con-Trib-Club provided a $283 Emergency Aid check to help the stricken family.

MEASUREMENT MEETING — Attending General Dynamics' Measurement Control Panel meeting last month in New York, from left, were (seated) E. R. Bader and C. G. Franklin, Electro Dynamic-SD; A. J. Woodington, Convair Aerospace-SD; E. E. Murphy, Convair Aerospace-FW; E. E. Brewer, Electro Dynamic-Pomona; W. F. Griffith, Quincy Shipbuilding; and (standing) A. T. Davis, Electro Dynamic-Orlando; L. E. Erwin, Convair Aerospace-FW; L. W. Fenlon, Electric Boat; P. I. Harr and E. W. Fedderson, Corporate Office; J. W. Twigg, Stromberg-Carlson, Rochester; and P. L. Joyce, Canadair, Ltd.

Tapered Precision Bolts Used in F-111 Sections

Precision high-fatigue-resistant Taper-Lok fasteners (tapered bolts) now are being used in place of conventional bolts at selected locations on F-111 aft-center-fuselage sections being fabricated by Convair Aerospace-SD Dept. 027-0 personnel at Air Force Plant 19.

Arlan Beebe, a Dept. 491-0 manufacturing development engineer, said the precision tapered fasteners provide a pre-loaded condition for uniform compression of material around the fastener hole and will improve structural fatigue resistance.

Beebe said 206 of the steel Taper-Lok fasteners are being used in each of the aft-center-fuselage ship sets. Time for the precision drilling, reaming, and inspection of the hole and installation and inspection of each fastener has been reduced from four hours to 1.3 hours since the program was instituted.

Employes handling the precision tapered-hole preparation and fastener installation are under the direction of James F. Ames, Dept. 027-0 group foreman; Forest Brown, sub-assembly foreman; and Phil Estrada, major-assembly foreman.

Pilot holes are drilled with power-fed drills. They then are rough-reamed with cobalt reamers and finished with special multi-flute carbide reamers.

To assure the interference-fit specifications are met, each hole is checked by an inspector.

An air gauge, capable of measuring .00005-inch, is used as needed to check the concentricity. Blueing pins are used to verify that each tapered fastener, after it has been placed in the hole, will have more than 80 per cent direct contact with the surrounding metal.

Maximum torque applied to each of the fasteners is controlled and verified by an inspector. A washer is used with each of the fasteners to eliminate the need for a chamfer at the top of the hole.

"The Taper-Lok system, while expensive and time consuming, is very versatile," Beebe said. "Since the fasteners are available in different sizes, a larger hole can be prepared and a larger fastener used if a hole that has been prepared fails to meet all inspection requirements and must be reworked. The real advantage, of course, is in its high fatigue resistance."

Beebe said Fort Worth operation personnel also use the precision Taper-Lok fasteners in the F-111 wing box and other areas where high-fatigue-resistant joints are of paramount importance.

Electric Boat Wins $62,415,000 Contract

Electric Boat Division is receiving a negotiated cost-plus-incentive - fee contract of $62,415,000 covering the preparation for and accomplishment of the overhaul, refueling and C-3 Poseidon conversion of the USS Benjamin Franklin (SSBN 640) and the USS Kamehameha (SSBN 642).

This is a Naval Ship Systems Command contract.

Measurement Panel Meets

Representatives of General Dynamics' operating units attended a Measurement Control Panel meeting last month at Corporate Office in New York City. P. I. Harr is corporate sponsor and C. G. Franklin of Electro Dynamic-SD is chairman.

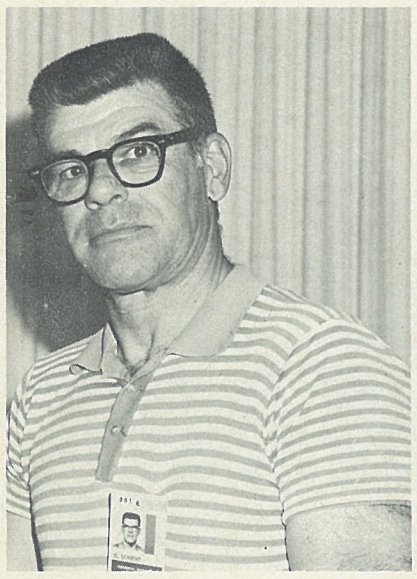
Purpose of the panel is to study and exchange ideas on the most feasible and effective methods of test equipment handling and calibration, appropriate calibration intervals, utilization, cost reduction and control, more efficient service to the user, and correlation of test equipment between divisions as a means of curtailing capital expenditures.

Evaluation and corrective action reports on items of test equipment is circulated among the operating units as an aid in obtaining a reliable inventory of test equipment.

Earl Murphy of Convair Aerospace-FW was elected vice chairman for 1971 and will be panel chairman in 1972.

TAPER-LOK TECHNIQUE — Lonnie Wood, a Convair Aerospace-SD Dept. 027-0 assembler at AF Plant 19 San Diego, operates power-fed drill for first step in preparing hole for Taper-Lok fastener in F-111 aft-center-fuselage section. Use of tapered fasteners increases structural fatigue resistance.

SHAKE, RATTLE, ROLL — Aftermath of severe February earthquake in Los Angeles is surveyed by Ted Downs, DatagraphiX systems support representative. Downs' residence in hard hit Sylmar suffered extensive damage during temblor. Con-Trib-Club provided Emergency Aid check to help the stricken family.



35-ERS — George Schicht, left, and J. A. Gliebe of Convair Aerospace Division recently received 35-year service pins.

Log Book Entries

Awards
CONVAIR

Employe Suggestion awards approved for week ending Feb. 26:

J. S. Adamson, Dept. 193-3, $15; H. Ashton, 149-3, $33.80; R. E. Belton, 401-0, $116.50; W. S. Betts Jr., 584-0, $15; H. A. Billings, 810-0, $23.10; J. F. Caradonna, 227-0, $15; L. L. Cerasaro, 046-0, $25; J. E. Cordova, 507-0, $15; J. Danzl, 148-4, $32.80; L. V. Davis, 149-7, $15; D. T. Edwards, 754-0, $30; J. C. Fox, 229-5, $15; C. D. Harrison, 027-0, $25; A. R. Hermann, 820-0, $191.20; E. G. Johnson, 250-5, $15; H. E. Kennon, 567-1, $25; D. L. Kuzara, 638-0, $110; C. Lasley, 015-0, $15.

Also B. N. Lenten, 149-5, $15; M. M. Lopez, 045-0, $22.90; W. Lyons Jr., 046-0, $15; H. R. Miller, 149-7, $165.40; L. M. Moore, 511-4, $60 (four awards); I. P. Mouet, 046-0, $29.40; L. A. Palais, 046-0, $15; M. W. Pardue Jr., 027-0, $15; R. J. Phillips, 454-0, $33.20; V. Prado, 027-0, $32.90 (two awards); R. Richards, 046-0, $92.10; C. E. Roach Jr., 761-0, $21.15; F. Salas, 810-0, $188.80; G. R. Simpson, 027-0, $15.30; H. F. Thompson, 027-0, $15; M. Vukelich, 144-0, $188.80; D. C. Wark, 517-0, $15.80; J. F. Weddle, 761-0, $21.15.

Employe Suggestion awards approved for week ending March 5:

R. E. Bakkedahl, Dept. 046-0, $50; J. Carney, 046-0, $23.10; B. R. Crowell, 149-4, $15; R. M. Daugherty, 027-0, $89.60 (two awards); J. F. Dean, 979-1, $15; J. E. DeWald, 400-4, $84.10; L. M. Earl, 149-4, $94.40; H. M. Fisher, 507-0, $22.60; R. C. Ihrig, 958-1, $25; A. M. James, 985-3, $30; L. E. Johnson, 142-1, $30 (two awards); R. B. Johnson, 250-3, $15; D. E. Koster, 759-0, $72.60 (three awards); B. A. Lathan, 840-1, $15; W. Lyons Jr., 046-0, $15; A. J. McGregor, 149-7, $50; C. A. McKinney, 149-5, $25; R. Montijo, 754-0, $18.80; I. P. Mouet, 046-0, $60.60 (three awards).

Also A. J. Nicholas, 045-0, $36.60; M. E. Norton, 759-0, $62.10; R. P. Poston, 566-2, $15; H. J. Quick, 142-1, $24.90; F. C. Rasmussen, 019-0, $15; R. C. Rice, 986-3, $15; J. D. Rogers, 228-4, $177.50; P. M. Rosenberger, 001-0, $15; A. Sansone, 541-0, $15.20; R. L. Schollian, 027-0, $29.30; T. R. Shattuck, 755-0, $75; J. G. Walda, 046-0, $143.50; J. P. Ward, 228-4, $35.50; S. Williams, 222-1, $90.60; G. F. Wilson, 149-8, $111.70; W. J. Wineski, 046-0, $15; A. J. Winner, 016-0, $15; L. G. Wood, 027-0, $15; G. C. Zimmerman, 761-0, $15.

Papers Presented
CONVAIR

Papers presented at AIAA 9th Aerospace Sciences Meeting, New York, Jan. 25-27:

YOUNG—C. H., D. C. Reda, and A. M. Roberge, Dept. 584-0; "Hypersonic transitional and turbulent flow studies on a listing entry vehicle."

TAYLOR—G. E., Dept. 512-2; "Definition of a common module series for the NASA candidate experiment program for manned space stations."

CHIARAPPA—Daniel J., Dept. 585-0; "Fine pointing and stability of space station experiments."

Other papers presented:

FAGER—John A., Dept. 501-5; "Parabolic space erectable antenna for high frequency applications;" Mexico 1971 International IEEE Conferencet on Systems, Networks, and Computers, Oaxtepec, Mexico, Jan. 19-21.

KAREMAA—Aadu, Dept. 583-0; "Airplane high lift system design by interactive graphic system;" AIAA Integrated Information System Conference, Palo Alto, Feb. 17-19.

ROYE—C. E., Dept. 491-0; "Careers in manufacturing engineering;" San Diego Engineering Council Engineers Career Coference, San Diego, Feb. 17.

"Cost Reducers"
CONVAIR

Ten-award pin—B. A. Buffat, Dept. 143-1.

Five-award pins — A. Sansone, Dept. 541-0; P. Hallward, 810-0; T. S. Potts Jr., 400-4; L. M. Moore, 511-4; C. R. Snow, 046-0; L. V. Harrison, 810-0.

Personals
CONVAIR

We wish to convey our sincere thanks and appreciation to our many Convair friends for the many cards, flowers, and thoughtful expressions of sympathy extended to us at the recent death of our husband and father, Gene Zimmerman.

Mrs. Eugene Zimmerman and family

Retirements
CONVAIR

AGUILERA—Enrique, Dept. 532-0. Seniority date May 16, 1963, retired Feb. 18.

ANIBAL—Thelma L., Dept. 143-3. Seniority date Feb. 27, 1951, retired Feb. 26.

BOLANDER — Irma A., Dept. 524-0. Seniority date March 20, 1961, retired Feb. 26.

FOSSE—Robert R., Dept. 545-2. Seniority date Sept. 8, 1958, retired Jan. 29.

KATALACK — Mary D., Dept. 780-1. Seniority date June 22, 1956, retired Feb. 26.

LOCK—Aubra, Dept. 131-1. Seniority date May 13, 1957, retired Feb. 26.

MC FARLANE—William, Dept. 250-3. Seniority date Sept. 5, 1950, retired Feb. 26.

MC GUFFIE—Joseph, Dept. 250-3. Seniority date Aug. 21, 1950, retired Feb. 26.

MELICHAR—Louis, Dept. 400-8. Seniority date Sept. 3, 1968, retired Feb. 26.

MOSS—Wilbert A., Dept. 860-0. Seniority date May 26, 1941, retired Jan. 29.

OLSON—Carl A., Dept. 001-0. Seniority date Aug. 16, 1960, retired Feb. 26.

PRATT—Floyd, Dept. 058-0. Seniority date June 25, 1956, retired Feb. 26.

PURCELL—Marvin, Dept. 143-3. Seniority date Nov. 12, 1957, retired Feb. 26.

RANDALL—Rowena R., Dept. 954-3. Seniority date July 7, 1958, retired Feb. 5.

RENNIE—Donald L., Dept. 732-0. Seniority date June 5, 1952, retired Feb. 19.

STANAKER—Evelyn B., Dept. 170-9. Seniority date Feb. 28, 1952, retired Feb. 26.

SWEETLAND — Orwyn W., Dept. 400-0. Seniority date Sept. 8, 1942, retired Feb. 16.

THOMPSON—Torvald B., Dept. 491-1. Seniority date Sept. 29, 1953, retired Jan. 22.

TOWNER — Charles H., Dept. 985-1. Seniority date March 5, 1953, retired Feb. 26.

WILSON — Wilbert P., Dept. 144-3. Seniority date May 6, 1957, retired Feb. 26.

WISSINGER—Walter J., Dept. 250-1. Seniority date March 3, 1959, retired Feb. 26.

ELECTRO DYNAMIC

LYNT — William W., Dept. 565. Seniority date July 11, 1950, retired Feb. 26.

Deaths
CONVAIR

BAUMAN — Henry F., Dept. 001-0, died Feb. 15; survivors include his wife, Phyllis.

HICKEY—Joseph, Dept. 999, died Feb. 27; survivors include his wife, Lula; a son, Daniel; and two daughters, Mrs. Jo Ann Petty and Mrs. Frances Stoop.

SIMMONS—Bert C., Dept. 046-0, died Feb. 12; survivors include his wife, Betty, and two daughters, Christina and Sandra.

ZIMMERMAN—Eugene L., Dept. 149-3, died Feb. 28. Survivors include his wife, Grace; son, Dennis; daughters, Clarice Sinnott, Donna Johnson and Janice Ahlgren; and six grandchildren.

General Dynamics News

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Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P. O. Box 1950, San Diego 92112.

Graphics System Developed by ED

(Continued from Page 1)

Each of the two units provides 16 million "addressable locations" on the display screen, compared with 250,000 to one million on other interactive graphics display systems being marketed.

"This high resolution and plotting accuracy is one of its most outstanding features," Redman said. "The ability to draw a high-resolution curve is tremendous."

Redman said Electro Dynamics-SD marketing personnel are contacting potential users of the system to determine application and production requirements.

Richard E. Thoman, manager of display engineering, is conducting demonstrations for potential users in a specially equipped display demonstration room in Bldg. 51 at Lindbergh Field.

An interim RTP unit currently is being used and evaluated by the U.S. Navy aboard an aircraft carrier. Another more sophisticated system is in operation in a military tactical data center.

Current proposals for follow-on airborne, shipboard, and ground display systems are under consideration by the armed forces. Commercial uses include management information systems and computer-aided-design installations.

Disneyland Party Tickets Moving

Ticket sales were still "moving briskly" last week for the five-hour General Dynamics family party at Disneyland on March 27.

"We still have a limited number of tickets at each of the 18 in-plant locations and are shuffling tickets for the charter buses back and forth between outlets to accommodate as many as possible," Ron Bippert, manager of family events for Convair Management Association, said.

Disneyland will open for the private party at 8 p.m. Tickets covering all Disneyland attractions are $4 each with children under three to be admitted without charge. Round-trip bus transportation is $3.75, also with no charge for children under three.

Bippert said employes who have purchased tickets but who, because of unforseen difficulties, are unable to attend can obtain refunds at employe benefits offices March 29 through March 31.

Corporate Ad Honors Air Combat Commands

A General Dynamics advertisement honoring the USAF combat commands for "25 years of readiness" is being published this month in selected daily newspapers and publications serving Air Force bases where Convair-produced aircraft are stationed.

"We're proud to be builder of many of the weapons systems—the B-36, the B-58, the Atlas ICBM, the F-102, the F-106 and, currently, the F-111 fighter-bomber and FB-111 strategic bomber—that have helped maintain the technological edge true preparedness demands," the advertisement states.

77 Skaters, Guests Take Big Bear Trip

Seventy-seven members and guests of CRA Ice Skating Club enjoyed skating, skiing, and other activities March 5-7 on the Club's annual winter weekend at Big Bear Lake.

One "midnight skating session" was held at Big Bear Ice Chalet from 11 p.m. Saturday to 1 a.m. Sunday and most of the group was back again at 10 a.m. Sunday for another. Enough snow remained on the slopes for good skiing.

Bud Davies, commissioner, said the club group occupied the entire Wawona Lodge and 13 adjacent cabins.

FLOWER SCENES SHOWN FOR SHUTTER SNAPPERS

"San Diego County Wildflowers," a colorful slide show by Wardene Weisser, was shown at the CRA Camera Club meeting March 7 in the Photo Arts Building, Balboa Park.

COST CUTTERS — R. H. Gilliland, left, Convair Aerospace-SD manager of reliability control-LF, presents commendation certificates for $946,900 in cost reduction to J. E. Cook, second from right, and E. E. Chavez, right. Jack Hurt, DC-10 program manager, presented related DC-10 program "gold star" pins and letters of commendation.

Cook, Chavez Honored For $946,900 Cost Saving

Jess Cook and Ernie Chavez, both Dept. 149-7 quality assurance supervisors, have been awarded commendation certificates and "gold star" pins for developing a simplified discrepancy reporting system for use in the DC-10 program that will save Convair Aerospace-SD an estimated $946,900.

Under the simplified system, inspectors enter code numbers for each type of defect and the number found on each DC-10 item on pocket-size defect report and inspection status report cards and place a small masking tape marker adjacent to each defect so it can be located quickly by rework personnel.

Following rework, the inspector rechecks each defect location and "stamps off" each item found acceptable with his personal stamp before removing the location marker.

The three-digit code number for each of 23 types of most commonly found defects are printed on the back side of the defect report card for easy reference.

Under previous operating procedures, each defect and its location was described in detail in long-hand on four copies of full-page inspector's report forms.

Inspectors handling such tasks frequently spent more than 50 per cent of their inspection time in report preparation.

In addition to the time taken to prepare and process such reports, the description of defects noted was subject to misinterpretation and the defects often were difficult to locate for rework and the necessary follow-up inspection.

Defect definitions for which the code numbers have been assigned relate to problems with fasteners, rivets, holes, countersinks, tool marks, scratched surfaces, wrong parts, part steps or gaps, sealing, surface waviness, and alignment or mismatch. The last item on the list, code 400, is for "other" defects.

Earl Smith, a Dept. 149-7 senior reliability engineer, provided a detailed analysis of defects previously being reported on which the code and list of definitions is based.

Use of the simplified discrepancy report card system also has streamlined recordskeeping procedures for weekly tabulations of discrepancies by type, location, and work area and will aid in determining action needed to help reduce different types of discrepancies.

Inspectors on the DC-10 program must check more than 200,000 rivets alone in each fuselage ship set for type, height, and proper installation. The area around each also must be checked for scratches, or other damage or discrepancies.

R. H. Gilliland, manager of reliability control-LF, presented the cost reduction certificates to Cook and Chavez. Jack Hurt, DC-10 program manager, presented the DC-10 program "gold star" pins and accompanying letters of commendation.

Four F-111As Slated For Participation in Australia Celebration

Four F-111As from the 430th Tactical Fighter Squadron at Nellis AFB, Nev., will participate in the Royal Australian Air Force's 50th anniversary celebration April 1-6.

The four aircraft will take part in activities at Canberra April 3 and at RAAF Base Richmond (near Sydney) the following day.

After making flyby demonstrations at both places, the variable-wing fighters will be on static display.

On March 28, the aircraft will fly from Nellis to Hickam Field, Hawaii, where crewmen will spend the day.

The four aircraft will depart for RAAF Base Amberley March 30. They will arrive March 31, after crossing the international date line.

Lt. Col. Bill Powers will be in charge of F-111 activities for the 430th, while airmen and officers of the 430th maintenance squadron will support the aircraft.

Aerial support will be provided by KC-135 tankers and C-141 cargo aircraft.

Con-Trib Allocates Grants for $9,190

Grants totaling $9,190 for five community service organizations were approved by the Convair Employes Con-Trib-Club committee in two recent meetings.

Included was $7,000 for the San Diego County Heart Association, $1,000 for Bayside Settlement House, $750 for the Boys' Club of San Ysidro, $250 for "I Care" at request of the Vandenberg employes' advisory committee, and $190 for the Boys' and Girls' Aid Society.

Aero-Space Museum Plans B-36 Tribute

A series of films on the B-36 and other Convair aircraft will be shown Sunday (March 21) in the San Diego Aero-Space Museum, Balboa Park, as a joint tribute to the aircraft and the Strategic Air Command on its 25th anniversary.

Photographs of the B-36 from the collections of Meyers Jacobsen and others and a model of the big bomber also will be on display.

Salvage Schedule

Next employes sales day at the Convair salvage yard, Lindbergh Field plant, will be Saturday, April 3. Hours are from 8 a.m. until noon. Entrance is by badge. Children and pets are not allowed inside the yard. Also not permitted are canvas or open-toed shoes and bare feet.

PISTOL PACKERS — CRA Pistol Club contingent, firing in Feb. 28 meet at Police range, included, from left (front row) Jerry Lehrer Bill Worthington, Red Schneider, Harry Black, and Bill Dittmann, and (back row) Leon Thomas, Mary Snyder, Lee Snyder, Ernie Kampmann, Ferd Carranza, Charles Kropp, and James Thomas. Club shoots are scheduled the second and fourth Sundays each month.

Pistol Club Members Compete Regularly Over Police Range

CRA Pistol Club members spend two Sunday mornings each month at the San Diego Police pistol range perfecting their aim by peppering targets with .22, .38 and .45-caliber fire and competing for awards in master, expert, and sharpshooter classes.

Firing on the .22-caliber course is scheduled each second and fourth Sunday, with firing getting under way at 8:45 a.m., and with short national course matches at each shoot being alternated between .22, center-fire, and .45 contests.

A 50-cent entry fee goes to the range officer for the individual's target which, with a little patching between events, is good for the morning.

Bill Dittmann, commissioner, said the club has several .22-caliber pistols for use by new shooters; .22 ammunition can be purchased from the club at cost, and .38 and .45 ammunition can be obtained from the police range officer.

The club currently has 22 members, with an average of 16 firing at each session. Red Schneider is secretary and Jim Halfacre range officer.

Top shooters on the .22 police course at the Feb. 28 meet were Charles Kropp and Harry Black, master class; Dick Sutton and Leon Thomas, expert class; and James Thomas, sharpshooter class. Red Schneider and Jerry Lehrer took first and second places, respectively, in the center-fire short national shooting.

CRA Calendar

(For information on CRA activities call CRA headquarters, ext. 1111 KM. Deadline for next issue of GD/NEWS is March 23. Call ext. 1071 LF or 3322 KM. All meetings are held in CRA Clubhouse unless otherwise noted.)

★ ★ ★

ADVENTURERS—Meet 7:30 p.m. tonight (March 17).

BADMINTON—Play 7-10 p.m., Mondays, Federal Bldg., Balboa Park.

BICYCLE CLUB—Call Bob Williams, ext. 1626 KM for information.

BRIDGE — Duplicate bridge sessions, 7:30 p.m., each Friday.

CAMERA CLUB—Meeting 7:30 p.m., March 21.

CERAMICS — Meet 9 a.m.-noon and 7-10 p.m., Tuesdays and Thursdays.

CHORUS—Rehearsals 7:30 p.m. each Monday.

COUNTRY & WESTERN MUSIC — Meet 7:30 p.m., Thursdays.

FENCING — Workouts and instruction 7:30-10:30 p.m., Fridays. YWCA, 10th & C Sts.

GARDEN CLUB — Now accepting orders for orchid corsages for both Easter Sunday and Mothers Day. Call Everett Henderson, 274-1754.

GOLF — Torrey Pines tourney, March 27, 7 a.m. tee-off.

GUN CLUB—Fun shoot, 9 a.m., March 28, Gillespie Field gun range.

HEALTH CLUB—Open 9:30 a.m.-10 p.m., Monday through Thursday; 9:30 a.m.-9 p.m., Fridays; 9 a.m.-noon, Saturdays; "women only" weekdays, 9:30-11 a.m.

ICE SKATING—GD family skate night 6:15-7:45 p.m. each Thursday, House of Ice, Interstate 8 and Lake Murray Blvd. Flat rate fee $1 (includes skates).

JUNIOR SCIENCE — Meeting 7:30 p.m., March 19.

MINIATURE RAILROAD—Work sessions Saturdays and Sundays, CRA Missile Park.

MODEL HO RAILROAD — Work sessions 7 p.m. each Tuesday, CRA Missile Park.

PISTOL CLUB — Shoot 9:15 a.m., March 28, SD Police Pistol Range, Federal Blvd. & Home Ave.

RADIO CLUB — Meeting 7:30 p.m., March 18.

RIFLE CLUB — Senior shoot 7 p.m., March 24. Junior shoot 9 a.m., March 20. Gillespie Field gun range.

ROADRUNNERS — Meet 7:30 p.m., March 25, Gillespie Field Clubhouse.

SAILING—Meeting 7:30 p.m., March 24.

SCULPTURE—Workshop sessions 7:30 p.m., Mondays.

SPECIAL EVENTS—General Dynamics family party at Disneyland, March 27. Tickets at all employe benefits outlets.

SQUARE DANCE — Dance 8-10 p.m. each Thursday.

STAMP CLUB — Meeting 7:30 p.m., March 25.

SWIMMING—Family swim night 7-9 p.m., March 20, Mission Beach Plunge. Tickets at employe benefits, 5 cents.

TOASTMASTERS—Convair Toastmasters meet 4:30 p.m., each Wednesday. Dynamic Toastmasters meet 5:30 p.m. Thursdays.

Fifty Club Members and Guests Dine and Tour Music Facility

Fifty CRA Hi-Fi and Music Club members and guests attended a catered dinner meeting Friday (March 12) in the CRA Clubhouse in which new officers were installed and Jim Hansen of Southland Music Co. presented a concert on a new Gilbransen Premier organ.

Installed as new officers were John Wohlwend, president; Bill Roden, vice president; Ursula Garside, secretary; and Dave Neilson, treasurer. Arch Ellsworth is commissioner.

Guests at the meeting also were given a tour of the club's studio and workshop.

The Hi-Fi and Music Club meets at 7:30 p.m. the second Tuesday at the Clubhouse and an organ group meets at 7:30 p.m. the fourth Tuesday at homes of members.

The club's studio is equipped with two stereo record players, reel-to-reel tape recorders, an eight-track cartridge record-player, casette recorder-players, a switching system for recording from one medium to another, and a stereophonic speaker system with amplifiers.

An extensive tape library and selected stereo records are available for use by members. All interested employes and their wives or husbands are invited to participate.

CRA Horsemen Plan Gymkhana

A gymkhana, a fast-paced show of individual and team timed events for speed and horsemanship, will be held by CRA Riding Club from 9 a.m. to about 5 p.m. Sunday (March 21) in the Missile Park riding ring.

Events will include keyhole, pole bending, polo turn, quadrangle stake, speed barrels, Texas barrels, fox and hounds, two-man relay, bullpen, pick-up and ride, and single-pole competition.

Trophies will be given to the first place rider in each event and ribbons through 10th place. Points for the Southern California Gymkhana Association will be awarded in six of the 17 events.

The show is open to all area riders. Entry fee will be $1 per class.

"This is an exciting type of show to watch or make slow-motion motion pictures of—and even more exciting to participate in," said Ed Fitzgibbons, a spokesman for the club.

CRA Ceramic Club Plans Public Show

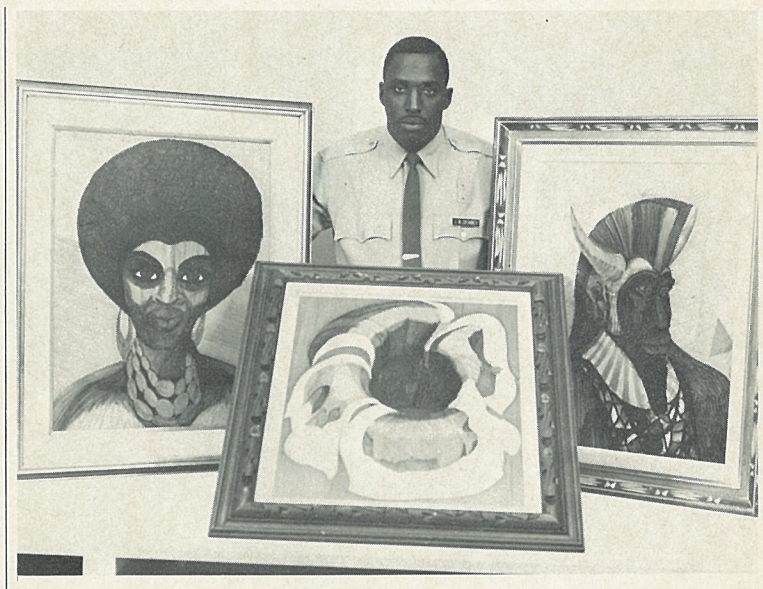
CRA Ceramic Club has scheduled its first public show for April 30 and May 1 in the CRA Clubhouse and auditorium and is inviting all interested non-professional ceramicists to enter.

First, second, and third-place ribbons will be awarded in divisions according to type of finish and manner of construction and there will be a $2 entry fee for each piece shown.

Entry blanks and additional information can be obtained from Nancy Bradford, president, 278-9664, or Dorothy Paszko, 278-7234.

Mrs. Bradford said a sale of ceramic objects made by club members also will be scheduled with part of the proceeds to go the club's fund for a new kiln. A raffle also is planned for four larger quality items — a table lamp, a tea set, a stein, and a Christmas tree.

Steering committee for the event, in addition to Mrs. Bradford and Mrs. Paszko, includes Lela Worley, Mary Miller, and Margaret Hottell.



PENNED PAINTINGS — Jesse Denny, a Convair Aerospace-SD security guard, displays three of his brilliantly colored felt pen paintings. Paintings, from left, are titled "The Temptress," "Maturity," and "The Chief."

Felt Pens

Leisure Time Painter Uses New and Novel Art Medium

Jesse W. Denny, a security guard in Convair Aerospace-SD's Dept. 131-1, has been devoting much of his spare time during the past three months to work in a new art medium—preparing 22 by 28-inch paintings with colored felt pens.

He has completed 45 of the brilliantly colored paintings, using more than 200 ¼-inch-tip felt pens, and is working on about 12 more. Instructors in the art department at San Diego State College and staff members of local art museums say they know of no other artist using such a medium for large-scale detailed paintings.

Denny decided to try felt-pen painting after doodling with small designs and getting a good result. He uses no models, does his painting at home on posterboards of various textures, and sprays his finished paintings with a clear varnish. His biggest expense is for frames, which cost $20 to $25 each.

Ron Hickman, executive curator of the Fine Arts Gallery of San Diego, has provided some technical guidance and suggestions for framing.

Denny's flamboyant paintings were featured last month in a Black Is Beautiful Week exhibit at San Diego State College and have been exhibited at art galleries, churches, hotels, restaurants, business and governmental offices and buildings, and Archie Moore's "Any Boy Can" clubhouse. A joint exhibit with artist Eddie Edwards is scheduled Friday and Saturday (March 19 and 20) in the CRA Clubhouse.

Although "strictly an avocation," Denny's painting with felt pens has paid off. He sold one of his portrait-type paintings, titled "The Chief," for $200 and three of his geometric-type pieces have been sold for $125 each.

Denny says his wife, Gerald, is involved in the activity "only in wanting to know when I'm going to quit spending so much time on it." His four-year-old son, Jesse Jr., paints along with his dad on his own scrap posterboards. His designs, typical of those of children his age, can best be described as "abstract."

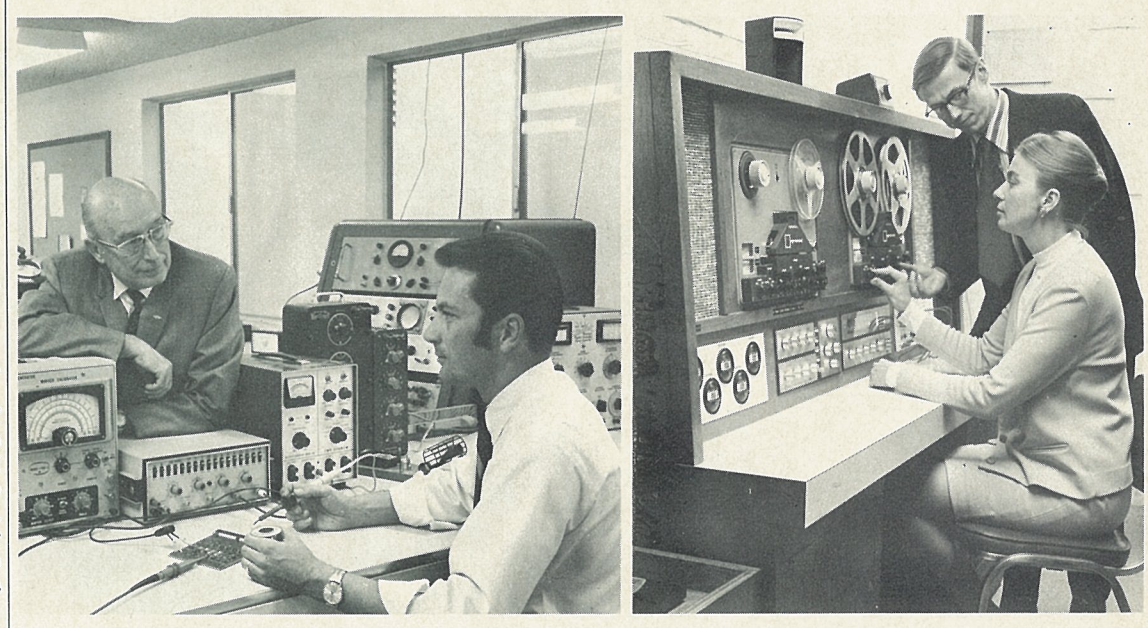
Denny, a member of the Southeast San Diego Black Art Club, figures painting with felt pens is at least as difficult as work with oils or other types of paints. The waterproof inks can not be removed—so the only way to correct an error is to cover it with a darker color.

Field of 350 Expected for CRA's Annual Bowling Championships

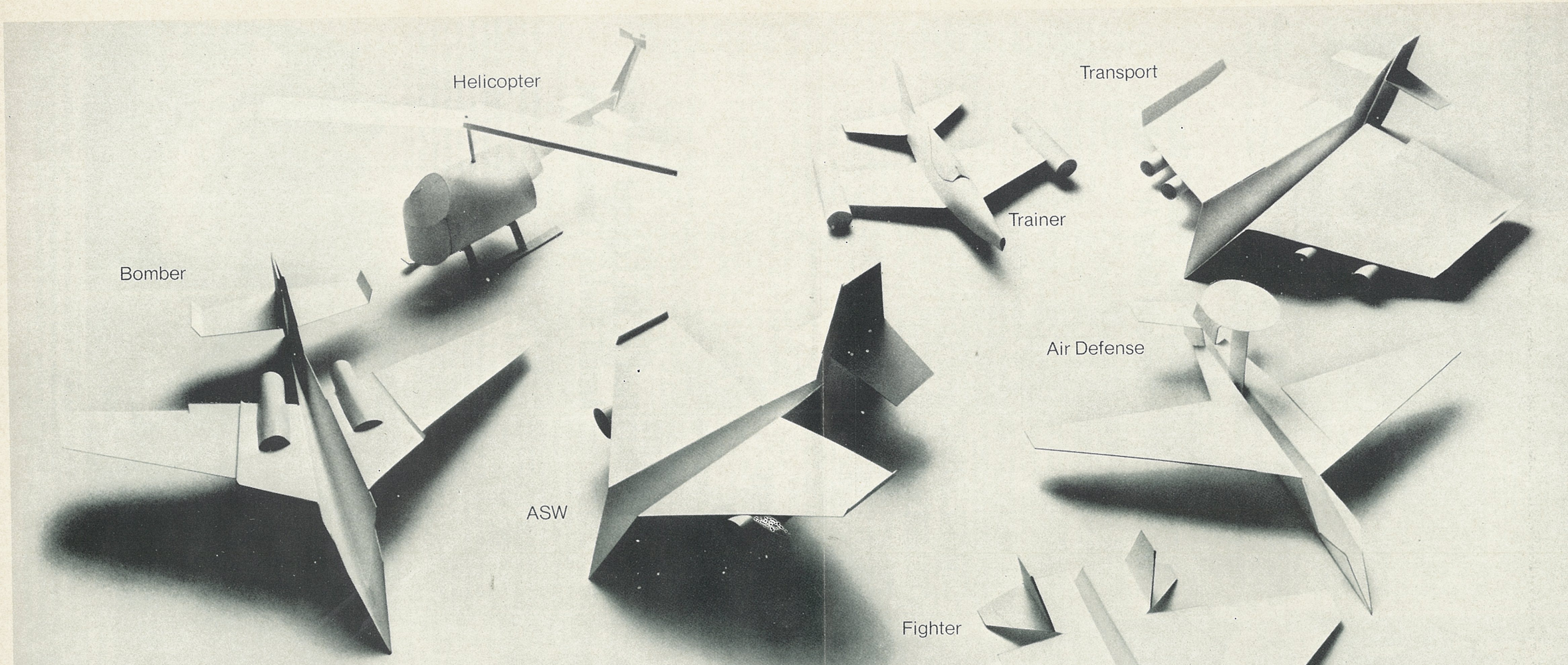
More than 350 bowling enthusiasts are expected to sign up for the CRA Bowling Club tournament April 17 and 18 and April 24 and 25 at Pacific Recreation lanes.

Entries close April 9 and forms are available at most bowling alleys and at employe benefits offices. Trophies and other awards will be given in team, doubles, singles, mixed and all-event categories.

Mike Brooks, commissioner, said all General Dynamics employes and members of their families are eligible although all must have ABC or WIBC cards. Five sanctioned bowlers may form a team for entry. Doubles-only or singles-only entries are not being accepted. Women's teams will compete in the mixed division.



SOUND SYSTEM — Guests at CRA Hi-Fi Club dinner meeting last week were given preview of club's studio and workshop. Photos, taken earlier, show June Reiger (at right) being briefed on master console operation by John Wohlwend, president, while at left Commissioner Arch Ellsworth and Bill Roden, vice president, chat.



Name any new aircraft of this decade. Our AGE can test its avionics.

Till now, when you delivered a new type of aircraft, you also delivered new Aerospace Ground Equipment for it.

Which, with each new generation of aircraft, caused a lot of the same old problems:

Less than optimum standardization, repetitive research and development costs, variable quality and reliability, and very often, a wide gap between delivery of the airplanes and arrival of their support equipment.

Granted each new aircraft has to be different for different needs. But does it make sense to have all of their support equipment different, too?

We think not.

So we designed and developed an AGE concept to solve these problems. Our AGE is the first automatic test equipment applicable to not just a single aircraft, but to an entire generation of future aircraft.

The reason for AGE's flexibility: the system is made up of integrated test stations in highly flexible building block configurations. The system can be adapted to all advanced aircraft planned through the end of this decade.

Our AGE is currently in use at bases in the United States and overseas with the operationally deployed F-111.

This same system could be economically adapted to the new F-15, as well as to the AWACS and B-1 and other Air Force programs.

Also, the system can be adapted to the Navy's Special Support Equipment requirements for the F-14 and S-3A programs. General Dynamics developed and delivered the first integrated AGE system. And it was available when the avionics for the F-111 were delivered. The flexibility of our AGE, at a minimum cost, for applications to this decade's avionics needs, is just one example of how General Dynamics puts technology to work solving problems from the bottom of the sea to outer space...and a good bit in between.

GENERAL DYNAMICS

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SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

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CEREMONY — About 500 representative Convair Aerospace-SD employes from three plants attended outside ceremony at Lindbergh Field in which third Air Force Craftsmanship Award was bestowed. Lt. Gen. Earl C. Hedlund was featured speaker. In center photo, General Hedlund, left, is assisted by Brig. Gen. John Chandler of Defense Contract Administration Services Region-Los Angeles and Brig. Gen. Lewis Norman of Air Force Space and Missile Systems, in presenting banner to Lyman Josephs, Convair Aerospace-SD vice president and general manager. San Diego operation was cited for "sustained superior craftsmanship performance."

Checks Reveal Improvement In Orderliness

The first series of planned quarterly work area checks under Convair Aerospace-SD's Performance Plus Program was conducted last week at Lindbergh Field, Air Force Plant 19, and Kearny Mesa. A similar check was scheduled Monday (March 29) for Convair Aerospace areas at Vandenberg AFB.

W. F. Chana, who is directing the Performance Plus Program, said checks were made in each area by a team consisting of the area representative for the program, a recorder designated by the area representative, a safety office representative, and assisting area representative from another area, and himself. Lyman C. Josephs, vice president and general manager, also accompanied teams for checks in some areas.

Appearance, orderliness, discipline, and compliance with safety standards were considered at each location with items needing correction being listed on a report form for follow-up by the area representative.

"We are already showing a lot of improvement, especially in the appearance of many offices, laboratories, and other work areas—but there is still much to be accomplished,"

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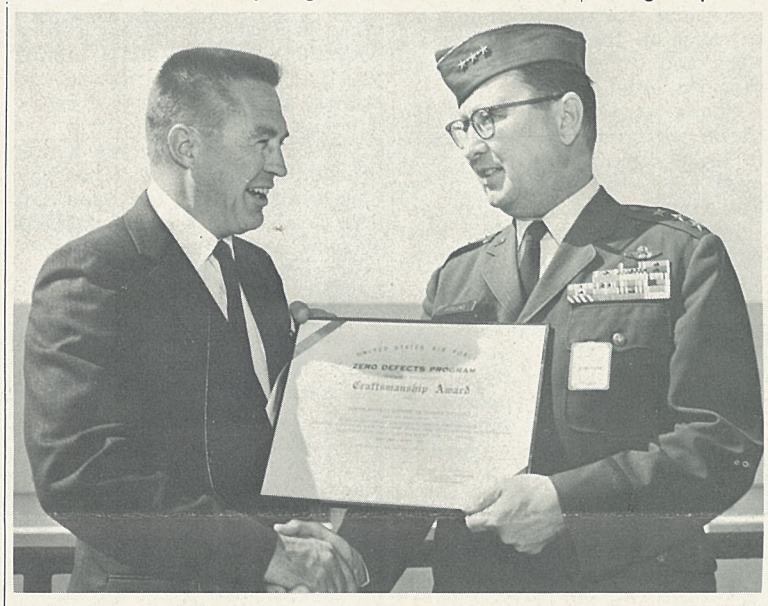


THIRD AWARD — Lyman C. Josephs, Convair Aerospace-SD vice president and general manager, receives third Air Force Craftsmanship Award plaque from Lt. Gen. Earl C. Hedlund, Defense Supply Agency director, in behalf of all San Diego operation employes.

Text of Address

Hedlund Recalls Past Convair Achievements—With Nostalgia

Following, in part, is the address given by Lt. Gen. Earl C. Hedlund, director of the Defense Supply Agency, for Convair Aerospace-SD employes at the ceremony this month in which he presented the second Sustained Craftsmanship Performance Award:

"It is always a pleasure to meet with people who furnish the products and services we need in the Department of Defense. This is especially true of companies such as yours which have made a determined effort to fill our needs with the highest quality products and, hopefully, at the lowest possible cost.

"General Dynamics' dedication to quality is demonstrated by the fact that through your Convair Craftsmanship Program you Convair Aerospace people have kept quality in the forefront for the past five years, and every year you have been able to improve your records of performance and reliability.

"This trust on the part of your people to be more alert, to pay more attention, and to work together to achieve top quality performance is in keeping with the best traditions that have placed America in a position of strength throughout the years. So . . . I am honored to extend to each of you congratulations on behalf of the entire Department of Defense.

"In reviewing some of the first and other accomplishments of you Convair Aerospace people, I can see why this must be an exciting and rewarding place to work.

"I remember many of Convair's early successes with some nostalgia. For example, the B-24 Liberator, a main-stay in the air war in Europe; the R3-Y turboprop, a first of its kind; the jet engine Sea Dart, our first jet seaplane; the wonderful old B-36

(Continued on Page 2)

'Dedication to Quality' Lauded at Ceremony

Convair Aerospace Division's San Diego operation received its third Craftsmanship award — a second Sustained Performance Craftsmanship Award—in the Air Force's Zero Defects Program March 16 at the Lindbergh Field plant in ceremonies in which three Air Force generals and a number of other military and civilian executives participated.

Lt. Gen. Earl C. Hedlund, director of the Defense Supply Agency, lauded the San Diego operation for its "dedication to quality" and products in an address before presenting the award plaque to Lyman C. Josephs, vice president and general manager.

General Hedlund was assisted by Brig. Gen. Lewis Norman, deputy commander for satellite operations for the Air Force Space and Missile Systems Organization, and Brig. Gen. John Chandler, commander of the Defense Contract Administration Services Region-Los Angeles, in presenting an accompanying banner.

The Sustained Performance Craftsmanship Award was presented to Convair Aerospace-SD and its employes "in recognition of sustained superior performance through individual craftsmanship reflecting outstanding achievement, increased efficiency, and economy . . ." It was signed by Gen. George S. Brown, commander of the Air Force Systems Command.

About 500 Convair Aerospace-SD employes attended the open-air ceremony on the roof of the cafeteria building adjacent to the Bldg. 5 plant entrance. Included were selected groups from the Kearny Mesa plant and Air Force Plant 19 who made the trip to Lindbergh Field in chartered buses.

Other guest dignitaries included Col. Charles Merz, commander of the San Diego DCAS district; Richard Jumont, acting manager of the NASA Lewis Research Center resident office at Convair Aerospace-SD; Capt. Vern Karlin, acting chief of the DCAS Office at Convair Aerospace-SD; Dwight Downs of DCASR-Los Angeles; and Keith Adams of DSA Headquarters in Alexandria, Va.

W. E. Magnuson, chairman of the Convair Aerospace-SD Craftsmanship Program, was master of ceremonies.

L. I. Medlock, director of reliability control, spoke in behalf of the San Diego operation's 12,000 employes and said, "We are all quite proud and very pleased to receive our second Sustained Performance Craftsmanship Award . . ."

Medlock thanked the employes "for your dedication to high quality and your individual and group efforts that have made our Craftsmanship Program a continuing success."

He also expressed appreciation to Defense Contract Administra-

(Continued on Page 2)

Team at Eastern Test Range To Assist Readiness Review

A 27-man team from Convair Aerospace-SD's Kearny Mesa plant was at Complex 36B at the Eastern Test Range March 15-19 to assist NASA and ETR personnel in a comprehensive flight readiness review of the Atlas-Centaur 23 launch vehicle.

Meanwhile, checkout operations continued on schedule for a companion vehicle, the Atlas-Centaur 24, on the adjacent Complex 36A launch pad which is scheduled for its flight readiness review April 12 through 16.

The "twin" Atlas-Centaurs are scheduled for launch about 10 days apart in May to start two identical Mariner spacecraft on six-month flights to the planet Mars.

On arrival in November, the Mariner "twins" are to insert themselves into different types of orbits around the planet to permit separate but complementary scientific missions to be performed.

The Mariner '71 spacecraft will be the first to be placed in orbit around Mars. Mariners launched previously by Atlas-Agena vehicles in 1964 and Atlas-Centaurs in 1969 were on fly-by trajectories.

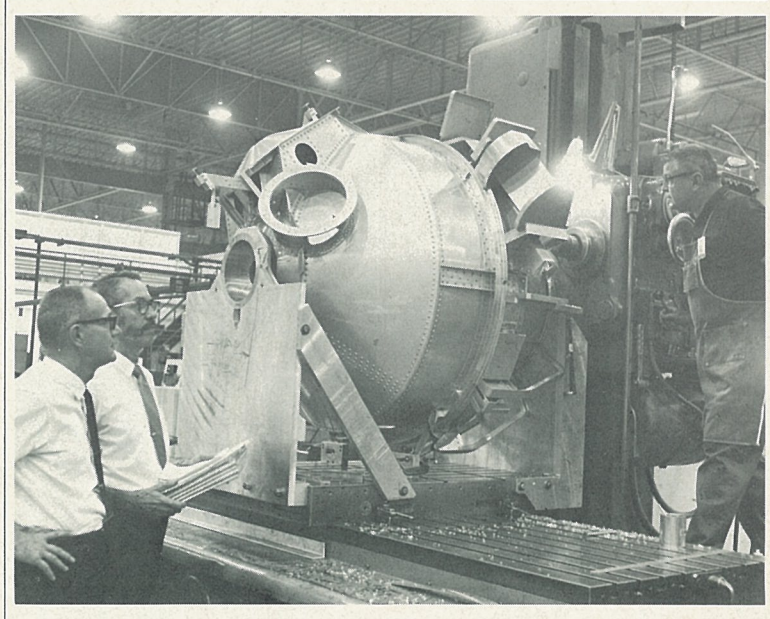
Convair Aerospace-SD's flight readiness review team for the AC-23 was led by B. R. Foushee, Centaur-D program manager; Karl Kachigan, chief of launch vehicle programs engineering; Ed Lindgren, mission project engineer; and Fred Bloschies, Atlas project engineer. Charles Bierman was team coordinator.

Eastern Test Range personnel taking part were under the direction of Dan Sarokon, John Kechele, Dan Merritt, Jim Sylvester,

(Continued on Page 2)

Salvage Schedule

Next employes sales day at the Convair salvage yard, Lindbergh Field plant, will be Saturday, April 3. Hours are from 8 a.m. until noon. Entrance is by badge. Children and pets are not allowed inside the yard. Also not permitted are canvas or open-toed shoes and bare feet.



MODULE MACHINING — Equipment module for OV1-21 is machined by William J. Wedeking, Dept. 731-0 jig bore machinist at Convair Aerospace-SD's Kearny Mesa factory, as Jim Lessig, left, and Earl D. Jones, both design engineers, look on. Jones said accomplishment of some final precision machining after module was assembled eliminated need for additional jig. Two OV1 vehicles are being fabricated for use in Air Force Space Experiments Support Program.

MANAGEMENT AIDS—Members of Convair Management Association enrichment committee look over management-oriented books, magazines, and tape cassettes being provided by club through division libraries for employe use. From left are Tom Leech, Bob Harris, Ron Stoneburner, Keith Blair, and Bob Montague.

Special Collection in Library Attracts 'Phenomenal' Response

Forty-two different cassette tape recordings, 27 books, and 15 different magazines and newspapers have been placed in each of the Convair Aerospace-SD libraries by Convair Management Association for use of all interested employes regardless of whether or not they are members of the association.

"An excellent collection has been assembled during the past six months and new material is being added each week," Keith Blair, chairman of the Management Association's management enrichment committee, said.

Many of the cassette tapes are by Earl Nightingale, known as the "dean of motivation," and other widely known speakers including Dr. Kenneth McFarland and Dr. Ralph Nichols.

Five cassette players and four player-recorders also are available for use with the taped collection.

Books in the collection range from "Managing Your Business" and "The Art of Negotiating" to "Up the Organization" and "Executive Etiquette." Several relate to preparation for college-level examinations.

Magazines and newspapers include Consumers' Bulletin, Fortune, Harvard Business Review, U.S. News and World Report, and the Wall Street Journal.

"Response to the special library collection is phenomenal," Blair said. "We already have about 20 cassettes on loan at all times and an Internal Revenue Service manual, for example, was used 14 times in one day recently."

Three members of the management enrichment committee—Bob Harris, Ron Stoneburner, and Tom Leech—review new books as they are published and make selections to be added to the collection.

Bob Montague handles recording of the cassettes from other tapes and records and Cy Campbell assists in selecting other literature to be purchased.

Materials in the collection are available at both the Kearny Mesa and Lindbergh Field plant libraries and can be checked out at any time during the regular library hours.

Team at Test Range To Assist Review

(Continued from Page 1)

Johnny Johnson, and A. T. McArdle.

Others from the Kearny Mesa plant on the review team included Al Vinzant, Dave Stein, John Soltmann, John Derango, Fred Anding, Charles Pruckner, Jim Haffron, Bob Shoff, Walt Sauer, Fred Kuenzel, Bob Vogel, Bill Evans, Ron Mikkelson, Joe Saugier, Jim Geil, Phil Yip, John Wickham, A. W. "Bert" Wiest, Paul Buchy, L. D. Harber, Norm Viste, and Ken Miller.

Checks Reveal Improvement In Orderliness

(Continued from Page 1)

Chana said.

"We have found some really immaculate areas in places where you wouldn't expect it—such as the maintenance construction yard at Kearny Mesa. Tremendous improvement also was evident in most of the engineering offices in Bldg. 5 at Lindbergh Field and the space sciences area in Bldg. 4 at Kearny Mesa.

"On the other hand, some offices were still cluttered with stacks of unused stuff that have been there for years. And one outside area being used for storage reminded me of Sycamore Site 1 after the Atlas test stand explosion."

Results of the Performance Plus Program have been "measurable" as well as evident in some areas. Salvage yard personnel, for example, have reported receiving almost 300 tons of unneeded surplus material for disposal since the program was implemented.

"People in general have a good feeling about the program and its objectives," Chana said. "Most of us realize we really needed something like this to prompt us to clean up the areas where we work and to remind us to keep them in order."

Chana emphasized that the checks were not being made just to isolate areas where improvement is needed but to record, as well, those areas in which considerable improvement has been made during the three months since the program began.

A Performance Plus Program brochure, which is being prepared for distribution to supervisors during the next few days, will outline standards in appearance, orderliness, discipline, and safety which the program is designed to help meet.

'Dedication to Quality' Lauded at Ceremony

(Continued from Page 1)

tion Services Office personnel at Convair Aerospace-SD for their "interest, encouragement, and overall support."

Col. Merz introduced General Hedlund after outlining some of the highlights of his distinguished military career. As director of the Defense Supply Agency, General Hedlund heads an organization of 52,000.

"With his great experience in buying, storing, transporting, and maintaining material, he has become a strong advocate of the Zero Defects concept and all of the programs associated with it," Col. Merz said.

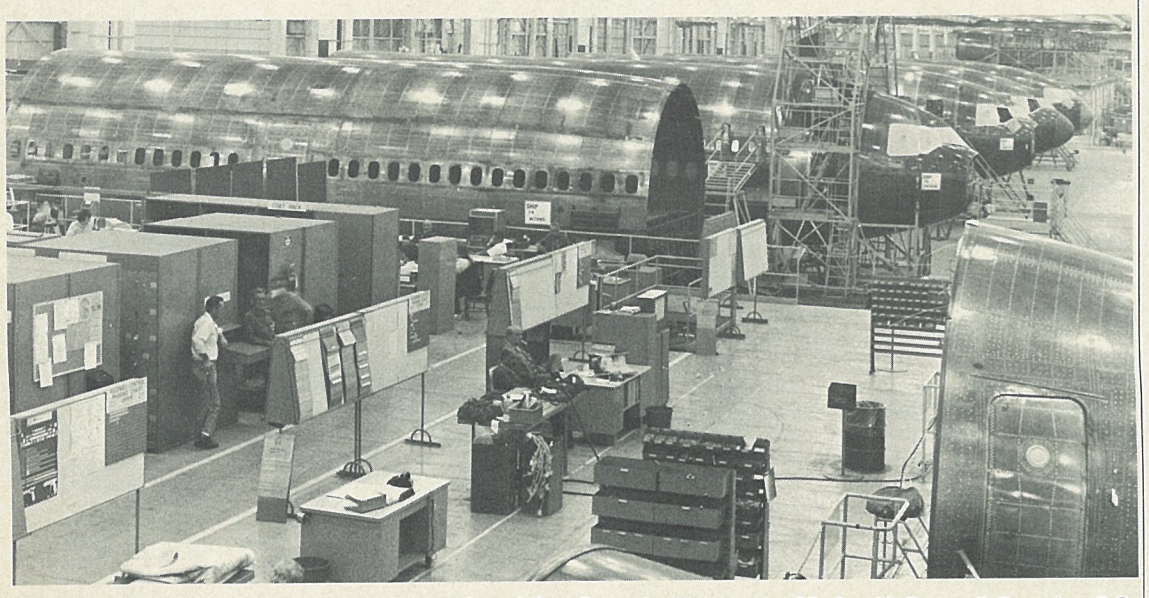
Josephs, after accepting the new Craftsmanship award for Convair Aerospace-SD, pointed out that one of this year's objectives for the San Diego operation is to earn another of the Sustained Performance awards.

"Of course, that means that we have to do better than we did the last time," Josephs said. "The Zero Defects program really means that you have to keep continually working toward zero defects. That's what we intend to do."

Frank Davis, president of Convair Aerospace Division, said the award being received is held in higher regard than any other the operation could receive.

"Maybe I ought to amend that a little bit," he then added. "An award of a big contract might be better." This brought laughs and cheers from employes in the audience.

"And I think, ladies and gentlemen," Davis added, "if you keep up the good work this way we're going to get one. I don't know how or when or what it will be, but I'm convinced that perserverence and dedication to quality are the kind of thing that are going to make that kind of award happen."



LINER LINEUP—Fuselage sections produced by Convair Aerospace-SD for McDonnell Douglas DC-10 tri-jetliners are lined up for mating at Douglas' Long Beach facility. First three of wide-bodied liners to be completed are now undergoing extensive flight testing.

Text of Address

Hedlund Recalls Past Convair Achievements—With Nostalgia

(Continued from Page 1)

with which we maintained our balance of power during the mid-20th Century; the T-29 flying classroom that trained our fine navigators and electronics countermeasures officers; the POGO, our first V/STOL aircraft; the now famous Delta-winged F-102, followed by the F-106, our first Mach-2 fighter; the B-58 Hustler, another mighty deterrent to foreign aggression. At that time in aeronautical history you were producing from one organization the nation's highest performing fighter and bomber. We can't forget your contribution to the C-141 Starlifter, our Air Force workhorse in the transport area; the F-111, our first variable-wing fighter; and your contribution to the huge C-5 Galaxy.

"All of this plus your outstanding support of our space program and NASA with the Atlas and Centaur, and the many other systems turned out or supported by the Convair Aerospace Division, must really, I suspect, make your hearts beat a little faster.

"I have had the opportunity to use many of your aircraft and other products during my career with the Air Force and I assure you that your part in making our country the world leader it is today has not gone unnoticed.

"In fact, I can give you a testimonial on the F-111. I had the opportunity to fly it a year ago and consider it a great tactical weapon, and certainly an important addition to the Air Force arsenal.

"Well, enough hangar flying. Let's get back to your Convair Craftsmanship Program, and the real reason we are gathered here today. Your Craftsmanship Program has placed the responsibility for quality in its rightful place—with the people who are doing the job, with the people most knowledgeable of their individual tasks, and with the people who are in the best positions to effect the changes necessary to ensure that the job is done right the first time.

"Thanks to people like you and your farsighted Convair policies and objectives, you have been able to broaden your management base to the maximum extent possible by giving everyone an opportunity to participate and become actively and enthusiastically involved in their work.

"People and teamwork are the essences of a good Zero Defects program. Everyone must exercise imagination and be observant in the performance of his or her task.

"Your Convair Craftsmanship Program stressed this need to develop an appreciation for individual competence and technical proficiency in an ever-increased variety of skills and jobs, and your management has supported this goal well.

"Your personal awareness that each task is important because each man fills a vital niche in the overall scheme of things is the root of your pride of craftsmanship, and your personal concern in delivering the best possible product to your customers is really the key to excellence.

"You can be proud of the emphasis and attention each of you shares in improving your understanding of the need to work beyond the norms.

"In our competitive environment, both at home and abroad, we desperately need to increase productivity, reduce costs, and improve our levels of quality and reliability. We see evidence of this in our news media every day.

"Three weeks ago, for example, the President was asking 'For power to protect the people from avoidable hazards and consumer products that cause an estimated 20 million injuries a year in and around the household.' The fact that this is happening here in America may be hard to believe.

"It seems that many of our citizens may be failing their responsibilities to the group effort, and no longer care about the future of some of their fellow countrymen.

"This is why I think it is important for us to get out and spread the Zero Defects philosophy. I know of no one more qualified than you Convair people here at San Diego."

After calling Lyman Josephs, vice president and general manager of Convair Aerospace-SD to the podium, General Hedlund said:

"In recognition of your accomplishments and the quality of the products and services furnished the Department of Defense, NASA, and other prime contractors, it gives me great pleasure to present to you the United States Air Force Sustained Craftsmanship Award for all the Convair Aerospace Division employes who helped earn this honor. This is your third Craftsmanship award, and it is the highest Zero Defects award I have had the privilege of presenting."

He then asked Brig. Gen. Lewis Norman, deputy commander for satellite operations for SAMSO, and Brig. Gen. John Chandler, commander of the DCAS Region-Los Angeles, to assist in presenting the Craftsmanship Award flag.

"Again, my congratulations to all, and I know I speak for all our servicemen and NASA people when I say 'thanks for a job well done . . . and keep up the good work," General Hedlund said.

Hedlund Visit Time of Reunion With Former Army Instructor

Lt. Gen. Earl C. Hedlund, director of the Defense Supply Agency, met and reminisced with an old friend when he came to Convair Aerospace-SD to present the Sustained Performance Craftsmanship Award this month.

Ralph Damon

Ralph Damon, an industrial specialist with the Defense Contract Administration Services Office and a retired Army lieutenant colonel, had served as an instructor when Hedlund was an ROTC cadet at the University of Nebraska in the late 1930s.

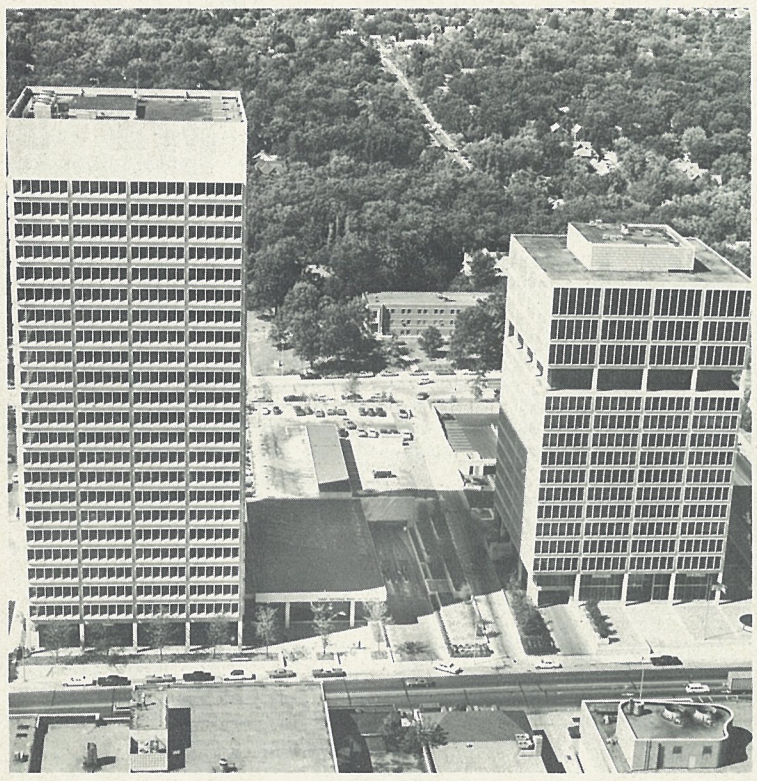
Damon recalled that Hedlund and Maj. Gen. Lowell English, USMC (ret.), were among his most outstanding students.

At that time, Damon was a sergeant, teaching artillery support techniques. He retired in 1956 and holds several Army commendations, including a battlefield commendation from Gen. George S. Patton.

Damon has been with the Air Force plant representative's and DCAS offices at Convair Aerospace-SD since 1957. As an industrial specialist, his primary concern is to see that contractual schedules are met and that problems related to government-furnished equipment are resolved.

During the past two years, Damon has been credited with approved cost reduction proposals that have saved more than $392,000.

He was awarded the Defense Supply Agency Cost Reduction Award in October and was honored as DCASO "employe of the month" in June. He also received the Defense Contract Administration Services' Sustained Superior Performance Award, a unique honor for a civilian employe, in 1969.



NEW HEADQUARTERS — General Dynamics headquarters personnel will shift from New York to St. Louis soon. They will be accommodated in Pierre Laclede Center (pronounced as in "deed") in taller of two buildings shown, at 7733 Forsyth Blvd., in the community of Clayton (see map, directly west of Forest Park). Ground-level parking is provided for autos in both buildings. Zip code is 63105. Note location close to wooded residential district though still not far from downtown St. Louis, and with easy access to main arteries of highway travel.

Arts and Sports

New Hdq. Home a City of Charm

St. Louis, future home for Corporate Headquarters, is located on the west bank of the Mississippi River, just below its confluence with the Missouri River.

Called the "Gateway to the West," St. Louis was founded in 1764 as a trading post by Pierre Laclede, a French merchant from New Orleans and was named in honor of the patron saint of the then-reigning king of France, Louis XV. The city is now the core of a vast metropolitan area having a population estimated at 2½ million.

St. Louis is one of the nation's major centers of transportation, manufacturing, commerce and education. It is the country's busiest river port and second largest rail and trucking center. It is one of the most diversified industrial areas in the nation and is the center of a region rich in minerals and raw materials.

There are four major universities, a three-campus junior college system and 16 other institutions of higher learning. The city has a vigorous tradition in the arts and also is a sports center. The 55,000-seat Busch Memorial Stadium is home for the St. Louis Cardinals baseball and football teams.

Forest Park, site of the 1904 World's Fair ("Meet Me in St. Looey . . .") covers 1,300 acres and includes famous St. Louis Zoo, planetarium, skating rink, three golf courses, tennis center, bridle trails, lakes for boating and picnic grounds. Also in the park is the Art Museum (collection valued at more than $10 million). The Jefferson Memorial is home of the Missouri Historical Society whose archives contain many original documents relating to the Early West.

Residents were enjoying music, plays and ballet when other frontier settlements were wilderness trading posts. The St. Louis Symphony is world renowned. The St. Louis Municipal Opera presents musicals during the summer in a 12,000-seat outdoor theater. The American Theater offers the best of Broadway in the winter season.

As for climate, St. Louis has four distinct seasons. Summers are warm but extended periods are extremely rare. Spring and autumn are moderate and winters brisk, without extended periods of bitter cold.

Annual average precipitation is 36 inches, with April, May and June the rainiest months.

Growth and diversification are evident in all sectors of commerce and industry in St. Louis.

Total employment in the metropolitan area rose to 997,000 in 1969, a 30½ per cent increase over 1960. Metropolitan St. Louis' population is now 2,400,000, up 14 per cent from 1960.

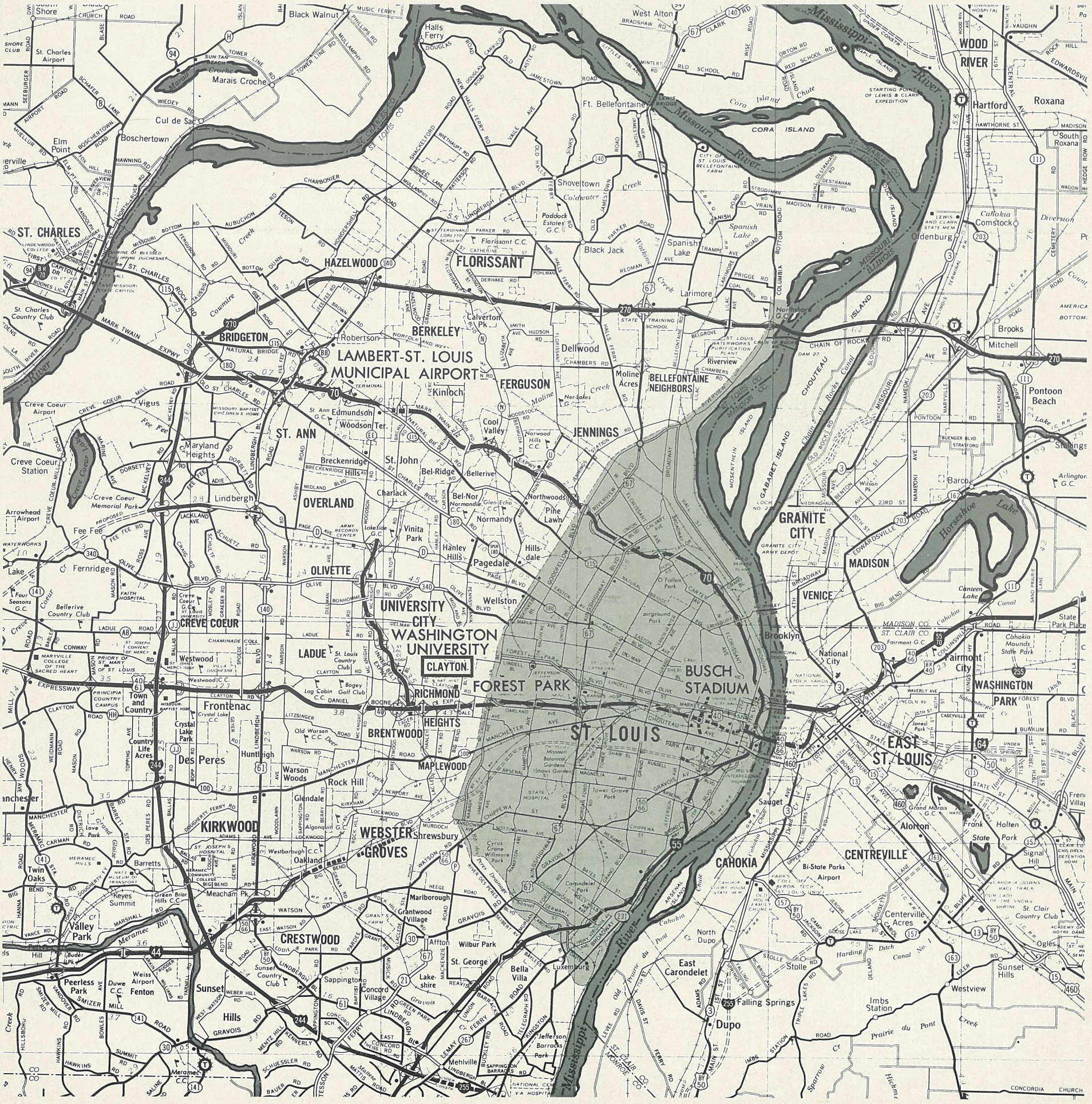
Location and transportation are the keys to St. Louis' economic growth. Being in the center of the country, it is a shorter distance from St. Louis to other major cities. Large-scale, low-cost transportation by air, rail, water and highways permits efficient movement of products.

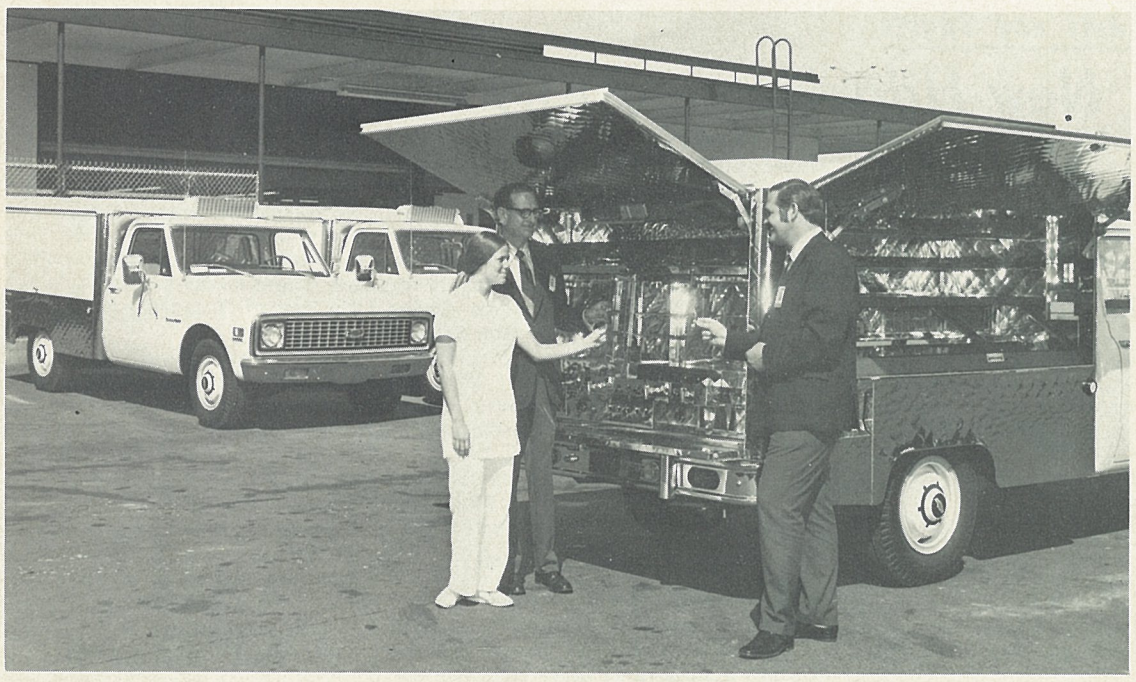
Air Hours Listed From New Hdq.

Corporate Headquarters, when located in St. Louis, will be considerably more centrally situated in relation to General Dynamics division/subsidiaries.

Listed are approximate air hours, depending upon connections:

San Diego, 2½ hours—1,729 miles; Fort Worth, 1½ hours—547 miles; Rochester, 3½ hours—732 miles; New York, 2 hours—893 miles; Boston, 2½ hours—1,079 miles; Chicago, 1 hour—258 miles; Orlando, 3½ hours—585 miles; Montreal, 5 hours 961 miles.





CULINARY CRUISERS — W. I. Rickman of Prophett Foods Co. and George Schmiedel, right, Dept. 131-7 supervisor, point out features of new mobile food trucks for Sherry Hyder, cafeteria employe at Kearny Mesa plant.

Log Book Entries

Service Emblems

Service emblems due during the month of March.

CONVAIR

THIRTY-FIVE-YEAR: Dept. 001, T. C. Berardini; 016, Louis Fischer; 045, R. O. Funke; 046, J. S. Bryant; 953, F. R. Gaughen.

THIRTY-YEAR: Dept. 015, J. M. McClendon; 031, T. B. Laukkanen; 046, M. A. Puentes, W. S. Rutherford; 049, K. M. Hawkins; 058, H. M. Bohmbach; 144, G. R. Gray; 149, C. E. Shyler, J. G. Sugg, W. A. Wade; 221, J. M. Opocensky; 227, B. E. Smith; 228, R. M. Montgomery; 400, M. F. Gilstrap, J. A. Leigl, J. N. Pasich; 401, M. A. Stutz; 526, W. A. Ebel; 545, V. J. Schack; 567, G. R. Shumway; 731, H. W. Anderson; 756, J. E. Nixon; 810, M. Formanek, C. T. Talbott; 860, J. L. Melanson; 988, L. G. Walton Jr.

TWENTY-FIVE-YEAR: Dept. 046, P. S. Brown Jr., B. L. Kite, M. Prince; 143, K. L. Sullivan; 250, L. B. Buhrman; 401, Delores E. Van De Walle; 511, M. A. Baird; 512, J. R. McLemore; 731, J. F. Kershaw; 780, Juanita S. Littell.

TWENTY-YEAR: Dept. 015, V. D. Baillif, V. D. Gilson; 031, J. L. Brown, G. H. Goebel; 045, R. J. Norman; 101, V. J. Neitzie; 110, F. S. Chambers Jr.; 130, Evelyn V. Carson, Dorothy B. Graham, P. F. Veal; 143, L. E. Cupp, Viva P. Hunt; 144, G. A. Gibbons; 148, W. A. Folsom Jr., Estelle G. Gibson; 150, R. H. Bacon; 170, Norma L. Gooley; 193, Dorris P. Lach; 195, E. A. Brook Jr., C. M. Gauss Jr.; 200, Annabelle M. Barrie; 222, E. J. Hallam; 223, M. J. Giertz; 229, Lois H. Tavelle, Lillian B. Wray; 250, T. Doucette Jr., L. Heyob, R. L. Leib; 400, M. J. Boeckel, J. G. Moe, Gertrude J. Silva; 401, R. H. Cowie, E. Leep; 509, M. M. Sherman; 511, R. M. Buss; 512, G. E. Taylor Jr.; 520, T. W. Ochodnicky; 545, J. M. Sawicki; 565, Virginia S. Rohr; 588, L. B. Christensen; 761, C. L. Dunlavey, E. A. Gooch; 802, Helen M. Medeiros; 840, Sue M. Curry; 860, Sandra L. Schmitz, M. Swinney; 952, R. F. Crupi; 958, J. Q. Wickham; 989, R. L. Austin; 999, A. C. Durson, Gayle W. Vance.

FIFTEEN-YEAR: Dept. 001, J. J. Spinn; 053, J. S. Berggren; 101, M. Vigliotti; 105, W. E. Detlefs, Jean A. Wilson; 131, H. L. Crowe; 140, M. R. Holmberg; 142, I. J. Romero, N. R. Straub; 143, F. R. Lee Jr., R. Z. Magana, V. D. Wynn; 144, Carol E. Mifflin, M. Vukelich; 145, T. J. Buchanan; 148, F. Fernandez, A. R. Townsend, R. L. Wagner; 149, C. V. Pereira; 170, Z. I. Fields, Bonita H. Grellson; 191, K. H. Bruner Jr., Lily M. Good; 195, Margaret A. Barber, W. H. Lakin; 196, H. T. Armitage; 198, W. McColley; 202, R. A. Calen, J. M. Rose; 204, W. E. Johnson Jr.; 205, Dolores O. Turner; 222, W. Greenwood, R. Surprenant, S. Williams; 223, J. W. Costley; 224, A. J. Halyburton; 225, K. H. Hogan; 226 Rufina C. Murillo; 228, C. M. Bishop; 229, W. Herman; 250, R. E. Bell; 400, Mary H. Ellis, Madeline M. Grand, R. J. Ingles, G. W. Price; 401, N. A. Inkel, A. Phelps; 508, S. A. Griffin; 515, C. M. Keys; 524, Mitzi McCrary, Mary L. White; 531, R. H. Boggs, 559, V. H. DeBolt; 565, Dorothy J. Wright; 566, R. E. Anderson, T. Pehka; 595, C. E. Reid; 596, R. T. Murray; 731, W. C. Johnson; 733, D. Capatanos, Juanita T. Hall; 756, D. E. Tibbs; 780, Katherine A. Ford, Ruth J. Quick, Marion L. Underwood, J. C. Walker, Evelyn J. Wilson; 810, N. Kosmas, Phyllis E. Miller, W. W. Stiers, C. J. Thompson; 840, G. E. Brown, Frances F. DeMartini, D. L. Finney; Rosemary M. Jessop; 950, F. F. Stanford; 953, W. B. Swearingen Jr.; 956, Geneva B. Perkins; 958, J. W. Swigart; 962, D. G. Dewey, J. R. Garner; 966, A. W. Prichard Jr.; 979, P. W. Kellett, R. T. Phelps, W. B. Phillips; 985, J. Cook, J. J. Daly, J. Copeland Jr.; 988, R. H. Thomas; 989, R. H. Gordon.

TEN-YEAR: Dept. 015, J. L. Ceasar; 101, W. L. Dyer, Wilma H. Gunning, Carol L. Ryan; 140, J. M. Bowers, 141, F. J. Wiegand Jr.; 144, Joyce F. Choitz, Patsy R. Harte; 149, G. W. Hay; 170, E. F. Prior; 192, O. E. Neal; 194, Grace M. Knutson; 195, S. H. Groben; 202, W. T. Askin; 400, S. W. Couvelis; 401, C. W. Chesbrough, J. A. Zinich; 524, Marcella F. Edwards; 572, M. D. Weisinger; 596, C. R. Claysmith; 731, J. Correia; 754, R. Scott; 780, J. W. Campbell, Juanita M. Herandez, Rose A. Peer, Mildred W. Robbins; 802, C. W. Nelson; 810, A. F. Curry; 820, H. O. Hoelter; 953, W. D. Lankford; 979, L. W. Gardenour, J. R. McDougal, E. Perry Jr.; 985, E. L. Settlemyre; 999, T. R. Roberts.

ELECTRO DYNAMIC

TWENTY-FIVE-YEAR: Dept. 612, R. C. Weaver.

TWENTY-YEAR: Dept. 423, LaVerne C. Landry; 638, R. J. Reyburn, J. A. Turner.

FIFTEEN-YEAR: Dept. 104, D. K. Kerr; 391, L. M. Hanson; 427, L. E. Enz Jr., S. V. Medigovich; 566, R. F. Patterson; 614, H. A. Swanton; 711, S. B. Harkey; 925, R. L. Wenger.

TEN-YEAR: Dept. 205, H. A. Wallace; 422, F. J. Snyder.

Awards

CONVAIR

Employe Suggestion awards approved for week ending March 19:

W. S. Betts Jr., Dept. 584-0, $15; D. B. Boehmke, 780-1, $78.70; E. B. Booth, 020-0, $7.50; C. R. Calkins, 227-1, $15; R. M. Chavez, 019-0, $7.50; M. E. Chira, 149-3, $30 (two awards); R. J. Chillo, 531-2, $15; G. D. Clarkson, 027-0, $30 (two awards); C. Costantino, 020-0, $7.50; L. Daniels, 015-0, $15; D. C. DeFord, 401-4, $60.50; M. Franke, 401-4, $30 (two awards); M. A. Herring, 595-5, $15; M. Gonzales, 840-3, $15; R. B. Jamieson, 019-0, $137; E. Leep, 401-0, $215.30; A. J. Millette, 407-0, $60.50; E. M. Preite, 001-0, $15; F. C. Rasmussen, 019-0, $7.50; J. N. Soures, 015-0, $63.20; L. G. Wood, 027-0, $15; J. H. Wines, 027-0, $15.80.

Employe Suggestion awards approved for week ending March 12:

R. P. Atwood, Dept. 001-0, $15; A. F. Atwood, 401-4, $15; E. J. Bauer, 250-1, $207.40; D. B. Boehmke, 780-1, $94.70; V. D. Brose, 985-1, $55.80; M. D. Chambers, 565-2, $15; H. R. Chapman, 250-2, $320.90; G. D. Clarkson, 027-0, $15; M. A. Freire, 045-0, $41.80 (two awards); A. L. Fuller, 046-0, $32.10; S. W. Lumnitzer, 519-0, $20; D. B. MacInerney, 507-0, $37.10; A. Majaika, 979-1, $15; L. G. Menches, 149-8, $86.30; I. P. Mouet, 046-0, $15; E. R. Muklevicz, 731-0, $171.70; D. R. Noon, 027-0, $21.90; J. H. Parons, 027-0, $15; F. A. Quinn, 019-0, $15; T. G. Scanlan, 046-0, $15; B. P. Wheat, 578-5, $15; W. A. Wherry, 046-0, $47 (two awards); J. B. Whitfield, 574-2, $15; T. L. Woodin, 491-1, $15.

"Cost Reducers"

CONVAIR

Ten-award pin — I. P. Mouet, Dept. 046-0.

Five-award pins — P. F. White, Dept. 511-4; V. Prado, 027-0; H. F. Thompson, 027-0; M. M. Lopez, 045-0; A. R. Hermann, 820-0; H. J. Quick, 142-1; C. L. Amaral, 140-1; W. A. Wherry, 046-0; J. B. Johnson, 460-0; H. A. Mohr, 001-0; Y. Z. Morris, 400-6; J. H. Parsons, 027-0.

Personals

CONVAIR

My sincerest thanks for your help during my illness is extended to the Con-Trib-Club and my fellow employes.

Richard Beeson, Dept. 400-1

* * *

My grateful thanks to all at Convair for the flowers, cards, and donations upon the death of my husband, Bert.

Mrs. Alta Waite

Deaths

CONVAIR

DYER — Philip M., Dept. 597-0, died March 16. Survivors include his wife, Marian, a daughter, Mrs. Peggy Ekdahl, and a grandson.

TAPKEN — Fredrick J., Dept. 985-1, died March 10; survivors include his wife, Shirley, and three sons, Mark, Thomas, and Brian.

General Dynamics News

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San Diego editorial offices:

Kearny Mesa plant, Bldg. 8, Mail Zone 104-61, P.O. Box 1128, San Diego, Calif. 92112. Phone 277-8900, ext. 3322.

Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P. O. Box 1950, San Diego 92112.

FORTH WORTH MAN EARNS MASTERS

W. O. Russell, Dept. 065, Fort Worth operation, recently received his Master of Business Administration degree from the University of Texas at Arlington.

NEW FOOD TRUCKS PUT IN SERVICE

Three new $8,000 mobile food trucks were placed in service last week at the Kearny Mesa plant to provide morning and lunch-period hot and cold foods for Convair Aerospace-SD and Electro Dynamic-SD employes.

The new trucks will be used from 6 to 7:50 a.m. weekdays at locations west of Bldg. 33, west of Bldg. 5, and south of Bldg. 1. Lunch-period service will be provided from 11 a.m. to 12:20 p.m. west of Bldg. 33, from 11 a.m. to 12:30 p.m. west of Bldg. 5, and from 11 a.m. to 1 p.m. south of Bldg. 1.

W. I. Rickman, Prophett Foods Co. manager in San Diego, and George Schmiedel, Convair Aerospace-SD Dept. 131-7 supervisor with responsibility for plant food and vending machine services, said the new self-contained food service trucks replaced old carts that had been in operation since the plant opened May 15, 1958, and are part of a continuing effort to upgrade food service.

Four Have Special Assignments Abroad

Four representatives from Convair Aerospace-SD were on special assignment at the Aerfer plant near Naples, Italy, for two weeks this month to aid in developing a "recovery schedule" for production and shipment of DC-10 fuselage panels being produced there under Convair Aerospace subcontract.

Included were Duke Rogers, material; Frank Eramo, tooling; Jim Tate, quality control; and John Burgeson, engineering. Revision of the schedule had become necessary due to recent strike activity at the Aerfer facility.

Will Buxton, Convair Aerospace-SD purchasing agent for the subcontract, said Burgeson is scheduled to remain at Aerfer through the end of April to assist with engineering associated with the new DC-10-20 and DC-10-30 series aircraft.

Convair Aerospace-SD has had four resident representatives at Aerfer for two years—Pete Nico, Herb Mishler, Ed Carosella, and Ralph Steele. Nico and Mishler were back in the U.S. on vacation leaves recently, Steele will be returning in April, and Carosella in June.

Retirees to See B-24s in Action

The recently formed General Dynamics Alumni Association will meet for a catered luncheon at 11:30 a.m. April 13 in the CRA Clubhouse. Walt Bailey, president, said all retirees are invited.

A film showing Convair-built B-24s in World War II oil field raids in Poland will be shown by representatives of the San Diego Liberator Club. A San Diego Zoological Society membership will be awarded as a door prize.

Eighty-five retirees attended the organization's last luncheon.

Delta Announces Plans To Purchase Five DC-10s

Delta Air Lines has announced plans to purchase five McDonnell Douglas DC-10 tri-jetliners for which fuselages will be produced at Convair Aerospace Division's Lindbergh Field plant in San Diego. An option was taken for three others.

Four instrumented DC-10 test planes this month had completed 600 hours in the air in more than 300 separate flight operations since the first DC-10 off the production line made its maiden flight in August.

Jackson McGowen, president of the Douglas Aircraft Co. Division, said the four test planes have completed about one-third of the estimated flight time required for FAA certification.

Progress in the test flight program has included:

1. Completion of structural and aerodynamic damping (flutter) tests through the "flight envelope" encompassing 42,000 feet altitude, .95 Mach number, and 437 knots (503 mph) speed.

2. Takeoff at gross weights up to 420,000 pounds, 10,000 more than maximum for initial aircraft, and landings at 380,000 pounds, 32,300 pounds higher than the design limit.

3. Demonstration of significantly lower sound levels than any commercial transport in service—and with no smoke.

4. Completion of lateral and longitudinal control system adjustments.

Data to date indicates the aircraft will meet cruise performance essentially as predicted, McGowen said. Stall speeds, minimum control speeds with a wing engine shut down, and minimum lift-off speeds have been better than predicted.

FAA officials began flying in the DC-10 in January and have been provided with about 90 per cent of the estimated data required for certification.

Delivery of provisionally certified DC-10s to American Airlines and United Air Lines is scheduled later this year.

Douglas representatives said 35 McDonnell Douglas and airline pilots have flown the new tri-jetliners and have been "unanimous in their praise" of the plane's flying qualities.

Tour Review Meeting Set

A complete review of tours being offered to Europe, Hawaii, Tahiti, and Mexico through Convair Recreation Association will be given at an annual "kickoff meeting" at 7:30 p.m. Tuesday (April 6) in Room C of the CRA Clubhouse.

"After careful review, CRA has selected tour programs that will offer participants the best travel values available," George Schmiedel, supervisor of recreation, said.

Schmiedel said brochures for each of the travel programs will be available at the meeting, color travel films will be shown, a guest lecture on travel will be presented, door prizes will be given, and refreshments will be served.

Reservations Open April 15 For Space At Pinecrest Park

Vacation reservations for CRA's Pinecrest Park for the months of June, July, August, and September will be taken by phone at the CRA Clubhouse, ext. 1111 KM, beginning April 15.

George Schmiedel, supervisor of recreation, said employes may reserve trailers, a cabin, or an A-frame house for a full week—with no exceptions.

Vacation rates are $42 per week for 17-foot trailers, $35 per week for 15-foot trailers, $30 per week for the primitive cabin, and $60 per week for the A-frame house for one family or $120 for two-family occupancy.

A deposit of $10 for rental of the trailers or cabin and a deposit of $20 for rental of the A-frame house will be required. Deposits must be in the CRA office one month prior to the date of reservation or the reservation will be cancelled.

On St. Patrick's

Kittens Born in Convertible

"Saints and begora," if Mother Machree didn't pick St. Patrick's Day to have her family! Not the usual family, mind you, but three newborn kittens aptly named Kelly, Clancy, and Paddy.

A surprised Mary Jane Anderson, secretary in Convair Aerospace Dept. 105 in San Diego, kept hearing a "squeeking" sound while driving her car to work. Then she spotted Mother Machree and her litter on the front floorboard.

"We saw each other about the same time," Mary Jane said, "and I don't know who surprised whom."

She explained that the rear window of her convertible is out and probably her car looked like as good a place as any for a home.

During lunch hour, Mary Jane said, Mother Machree dined on tuna fish and milk served in an ashtray. The litter of course had ample food supply.

Now Mary Jane is looking for a home for the felines. Since it's so close to Easter she pondered, maybe someone would like to give a kitten instead of a bunny.

ST. PAT'S PRESENT—Mary Jane Anderson shows off new born kittens that have taken up residency in her car. Mary Jane hopes they are only visiting—she lives in an apartment and can't keep them.

Six Convair Men Serve On Police 'Peace' Patrol

Six Convair Aerospace-SD employes who also serve during their off-duty hours as pastors or associate pastors of churches in San Diego and Imperial Counties recently received commendation certificates from the San Diego Police Department for exemplary service on its Chaplains' Patrol.

They are Sam Young, pastor of New Mt. Olive Baptist Church in Brawley; Walter Wells, associate pastor of Calvary Baptist; Walter Butler, associate pastor of Community Baptist; L. E. Thompson, pastor of St. Paul's Baptist; Roy Williams, associate pastor of Linda Vista Second Baptist; and Forrest Hancock, pastor of Freewill Baptist.

The 35 ministers and priests on the volunteer Chaplains' Patrol—most of them from minority races and members of the Southeast San Diego Ministerial Alliance — take turns riding with a police lieutenant Friday, Saturday, and Sunday afternoons and evenings and follow police calls to where problems have occurred or are reported likely.

Each of the "chaplains" carries a San Diego Police Department identification card and provides counseling or whatever other assistance is deemed advisable under the circumstances.

The Chaplains' Patrol also meets quarterly with the police chief and other officials to review some of the problems encountered, recommend policy changes, and prepare a roster for the next three months of "patrol" operation.

One-way street routing past Mountain View Park came from one of the group's recommendations.

Rev. Young, a 15-year Convair Aerospace employe widely known among inter-plant bus commuters as the "world's greatest bus driver," said the Chaplains' Patrol has become widely known in areas of the city that have large minority populations.

"It has created a better relationship between the police and the people," he said. "The people like it. We relate to them—and sometimes just the fact that a minister is present helps."

In some cases, disturbances and fights on school grounds and at other locations have been resolved solely by the ministers, at their request, without police intervention or arrests being made.

Rev. Young said he himself has an entirely different opinion of the police since starting work with the patrol.

"No, they're not too tough," he said in response to a question. "In fact, they're not tough enough in some cases."

Many of the problems the "chaplains" see are attributed to increasing use of narcotics. Family quarrels and disputes among groups of teenagers also are common. Members of the patrol have had enjoyable times, too, including watching some exciting minutes of high school, college, and professional basketball games while "on duty."

Olif J. Roed, who recently retired as San Diego police chief, attributed the relatively trouble-free summer in the city last year in part to success of the Chaplains' Patrol.

The Police Department commendation certificates presented to the Convair Aerospace-SD "chaplains" said their contributions to the Chaplains' Patrol "has been effective in promoting and improving human relations within the city of San Diego."

Because of the program's effectiveness several other cities, including Los Angeles and New York City, are considering instituting such patrols.

POLICE RECOGNITION — Among Convair Aerospace-SD employes who have received San Diego Police Department commendation for service on Chaplains' Patrol, from left, are Rev. Walter Butler of CRA staff, Rev. Sam Young of Dept. 250-5, and Rev. Walter Wells of Dept. 400-8. Police officials say program has done much to improve relations between police and public.

RECREATION LEADERS — Officers of Convair Recreation Association for coming year, elected at March meeting of CRA Employes' Council, are, from left, Steve Berry, president; Vince Bacon, vice president; Inez Breeden, secretary, and Joe Harris, treasurer. All but Harris are reelectees and he has served as CRA president several years ago. Commissioners of CRA clubs serve with officers on Employes' Council.

Boogaloos Trample Underbrush For Plant Basketball Crown

The Boogaloos hoop squad won the CRA plant league basketball championship by defeating Underbrush, 62-55, in a fast-paced playoff game March 21 in Municipal Gym.

Winning the fast-break championship gave the Boogaloos a 10-1 record for the season with their only loss a 57-53 encounter with Cosmo Rams.

Pete Beyrer, CRA basketball commissioner, said Underbrush earned its shot at the championship by squeezing by Electro Dynamic, 63-61, March 18 to gain the Wednesday fast-break league crown. Terry Dougherty put the game on the scorebooks for Underbrush by sinking a 20-foot shot with two seconds left on the clock.

Electro Dynamic had defeated Underbrush, 65-63, to take the lead in first-half standings in the Wednesday league and Underbrush had defeated Aero, 55-40, on March 10 for top place in the second-half standings. The Boogaloos had led the Sunday league in both halves of season play.

Gasp won the Thursday slow-break league crown by defeating DatagraphiX, 34-19, on March 4. Gasp had been undefeated in second-half play and DatagraphiX had eked out a win over Potluck, 28-26, to take the lead in the first half.

Beyrer said members of the Boogaloos, Underbrush, and Gasp teams will receive trophies at an awards picnic to be scheduled at Missile Park.

Cyclists Enter Del Mar Rally

Members of the CRA Bicycle Club will participate in the Great Western Bicycling Rally at Del Mar Fairgrounds, April 2-4. The three-day meet will feature riding events for all ages as well as races and cycling films.

A "frontier town" 25-mile ride is scheduled for April 10 with Tom Lorr, ext. 1846 LF, as leader. Pedalers will meet at 9 a.m. at the Bank of America, Sweetwater Road and Jamacha Blvd.

On April 17 Jim Hamill, ext. 1548 LF, will lead a 50-mile Santa Ysabel, Scissors Crossing excursion at Warner Springs. Riders will meet at the CRA Clubhouse at 7:30 a.m. and caravan to Santa Ysabel for the tour.

Bill Stubblefield, ext. 1091 KM, will guide a 50-mile north county ride on April 24. Rendezvous is 7:30 a.m. in the parking lot adjacent to the old Del Mar Hotel.

ORCHID CORSAGES OFFERED BY CLUB

Cymbidium orchid corsages will be available again this year to General Dynamics employes for both Easter and Mother's day.

Made to order corsages by CRA Garden Club members with blooms of white, blush, pink, yellow, yellow with red lips, light or dark green, or maroon in color with ribbons matching or contrasting are being offered.

Available in either single, double or triple blooms, they range in price from $2.50 to $3.50. For an additional $2.50 shipping and handling fee, corsages may be shipped anywhere in the U.S.

Order blanks may be obtained through employe benefits and CRA outlets or by phoning Everett Henderson, 274-1754.

* * *

Club members are preparing for their annual Spring Rose Show scheduled for April 25 in the Floral Association Building, Balboa Park.

The event is open to the public free of charge.

Twilight Golf Loop To Begin April 6

A ten week mixed twilight golf league will get under way April 6 at River Valley links. Play will begin at 6 p.m. each Tuesday with golfers competing for individual and team honors.

Teams will consist of two players. Mixed teams are being encouraged but are not mandatory.

For information and registration call Lynn Williams, 460-9805.

CRA Calendar

(For information on CRA activities call CRA headquarters, ext. 1111 KM. Deadline for next issue of GD/NEWS is April 6. Call ext. 1071 LF or 3322 KM. All meetings are held in CRA Clubhouse unless otherwise noted.)

★ ★ ★

BADMINTON — Play 7-10 p.m., Mondays, Federal Bldg., Balboa Park.

BICYCLE CLUB—Call Bob Williams, ext. 1626 KM, for information.

BONAIR FLYERS — Meet 7:30 p.m., April 1.

BRIDGE — Duplicate bridge sessions, 7:30 p.m. each Friday.

CAMERA CLUB—Meet April 18, 7:30 p.m., Photo Arts Bldg., Balboa Park.

CERAMICS—Meet 9 a.m.-noon and 7-10 p.m., Tuesdays and Thursdays.

CHORUS—Rehearsals 7:30 p.m. each Monday.

COINEERS—Meet 7:30 p.m., April 12.

COUNTRY & WESTERN MUSIC — Meet 7:30 p.m., Thursdays.

FENCING — Workouts and instruction 7:30-10:30 p.m., Friday, YWCA, 10th & C Sts.

FISHING—Lake Henshaw outing, April 17-18.

GARDEN CLUB—Easter and Mother's Day corsages orders now being taken. Spring Rose Show, April 25. Club meeting, 7 p.m., April 7, County Operations Center, directly across from CRA Missile Park.

GOLF — Mixed twilight league now forming. Play 6 p.m., Tuesdays, River Valley links. Meadows Country Club tourney, April 10-11, 7 a.m. tee-off.

HEALTH CLUB — Open 9:30 a.m.-10 p.m., Monday through Thursday; 9:30 a.m.-9 p.m., Fridays; 9 a.m.-noon, Saturdays; "women only" weekdays, 9:30-11 a.m.

HI-FI MUSIC—Meet 7:30 p.m., April 13.

ICE SKATING—GD family skate night 6:15-7:45 p.m. each Thursday, House of Ice, Interstate 8 and Lake Murray Blvd. Flat rate fee $1 (includes skates).

MINIATURE RAILROAD—Work sessions Saturdays and Sundays, CRA Missile Park.

MODEL HO RAILROAD—Work sessions 7 p.m., each Tuesday, CRA Missile Park.

PINECREST PARK—Vacation reservations open beginning April 15 for months of June, July, August and September.

PISTOL CLUB — Shoot 9:15 a.m., April 11, Police Pistol Range, Federal Blvd. & Home Ave.

RADIO CLUB—Meet 7:30 p.m., April 1.

RIDING CLUB — All-western horse show April 18.

RIFLE CLUB—Senior shoots 7 p.m., April 14. Junior shoots 9 a.m., April 3.

SCULPTURE—Workshop sessions 7:30 p.m. each Monday.

SKI CLUB—Meeting 7:30 p.m., April 6, South Bay Club recreation room.

SQUARE DANCE — Dance 8-10 p.m. each Thursday.

SWIMMING—Family swim night 7-9 p.m., April 17, Mission Beach Plunge. Tickets at employe benefits, 5 cents.

TOASTMASTERS—Convair Toastmasters meet 4:30 p.m., Wednesdays. Dynamics Toastmasters meet 5:30 p.m., Thursdays.

TOURS—Meet 7:30 p.m., April 6 for review of tours offered.

Morrow Named To AIAA Post

Two from Pomona operation of Electro Dynamic Division have been named to technical committees of the American Institute of Aeronautics and Astronautics.

W. J. Morrow, vice president and general manager, was appointed to the management committee which is concerned with management problems unique to aeronautics and astronautics with emphasis on problems arising from the management of research and engineering projects.

P. K. Salsman of Pomona's aerothermodynamics engineering section was named to the propellants and combustion committee. Scope of that committee includes physics and chemistry of reactants and working fluids for reaction propulsion.

The national technical committees are responsible for AIAA's technical program and for providing authoritative opinion on specialized subjects in their respective areas of concern.

Horsemen Plan Western Show

CRA Riding Club has scheduled an all-western horse show April 18 in the Missile Park riding ring. The show will be open to all riders with a $1 entry fee for each class.

Tentatively planned events include showmanship-in-hand, bareback horsemanship, equitation, trail horse, barnyard jumping, and gymkhana events.

All riders must be in western dress including hat, skirt, chaps, and boots.

"The western show is judged on the ability of the rider to ride correctly and the ability of the horse to respond to commands and use ordered gaits correctly," Ed Fitzgibbons, publicity chairman for the club, said. "Appearance of horse and rider also is important in the judging."

All horsemen have been invited to participate. Others with an interest in seeing such a show have been asked to note the date and make plans to attend.

PISTOL CLUB NAMES WINNERS IN MATCH

Charles Kropp, Dick Sutton, and Ferd Carranza took first place honors, respectively, in master, expert, and sharpshooter classes in .22 police course competition at CRA Pistol Club's March 14 meet. Kropp also placed first in .45 short national firing.

Design of Giant Submarine Tankers Held 'Well Within State of the Art'

General Dynamics' proposed 1,020-foot-long nuclear-powered submarine tankers, each of which would carry 1.8 million barrels of oil, can provide the most reliable and economical means of transporting crude oil from Alaska's North Slope and Canadian Arctic islands to ice-free North Atlantic ports for redistribution by surface tankers to East Coast and European ports.

Samuel B. Winram, director of public relations for Quincy Shipbuilding Division, made this assessment as he described the proposed subtankers at recent Propeller Club meetings in San Pedro and San Diego, Calif., and at a meeting of Convair Aerospace-SD's Management Association. Films also were made by Convair Aerospace-SD's motion pictures and TV section for use on a Canadian television network.

"The Arctic's hostile environment and its geographical location combine to make it one of the least accessible areas in the world to conventional means of bulk transport," Winram said.

"While the surface ship must batter its way through about 1,000 miles of some of the worst ice conditions in the north, the submarine would cruise below the ice canopy, which incidentally seldom exceeds 15 feet in depth, in a protected environment which is essentially stable and at near-constant temperature.

"The submarine would operate the same whether it's in the Arctic or the Caribbean. Since it would be exposed to a minimum of environmental hazards, reliable and predictable delivery schedules could be maintained year round."

Winram said General Dynamics could develop the first of the big sub tankers in about 4½ years and provide follow-on deliveries at the rate of about two per year. Timing would be influenced, however, by lead time for the reactor plants.

Alaska's North Slope is estimated to contain 30 to 35 billion barrels of oil—about as much as the present reserve of the entire U. S. — and Canada's Arctic Islands, stretching a thousand miles across the top of the continent, have potential for far greater quantities.

Fifteen of the General Dynamics 250,000-ton sub tankers, each about the size of the liner Queen Mary, could load two million barrels of crude oil a day with a two-week round-trip transit under the ice of the Northwest Passage to Godthaab, Greenland.

The sub tankers also could travel under the Arctic ice to Iceland or Norway. Tankers of any tonnage then could be used to transfer the oil to varied coastal destination points.

Winram said current forecasts are that the U.S. will need 22 million barrels of oil a day by 1980 and that the world will need 235 billion barrels during the present decade—more than has been consumed during the past 100 years.

General Dynamics in preparing proposals for the sub tanker has worked with five oil companies—Standard Oil of New Jersey, Atlantic Richfield, Mobil, Standard Oil of Ohio, and Phillips Petroleum.

The proposed sub tanker, carrying a crew of 39, would have a large rectangular tanker-like hull with a pressure-resisting center cylinder for living and control spaces, pump rooms, and propulsion machinery.

Except for the center cylinder and free-flooding ends, the vessel would be filled with oil cargo in loaded condition and sea water in ballast condition. Variable cargo tanks on each side of the main cylinder would compensate for the difference in density between oil and sea water.

Operating depth would be 300 to 400 feet with propulsion by twin-screw steam turbines providing a sustained speed of 17 knots. Steam would be supplied by a pressurized water reactor similar to those now in use at land-based nuclear power stations. Submerging and surfacing would be accomplished by taking on or expelling sea water from the main ballast tanks.

The sub tankers would have an option not available to surface ships—they could load underwater from pads built and towed to the loading site then sunk and connected to shore pipelines.

The sub tankers' cargo tanks would always be full of oil, water, or a combination of the two—but never air as in regular tanker operations—which would eliminate oil vapors, reduce corrosion, and tend to eliminate fatigue stress caused by loading and unloading combinations of tanks in the same vessel.

"Another important advantage is the high potential for preventing contamination of the sea," Winram said. "During the loading operations, cargo oil is forced into the top of each tank, displacing sea water. When the razor-sharp oil-water interface approaches the lower point, the water is diverted into an expansion tank for separation."

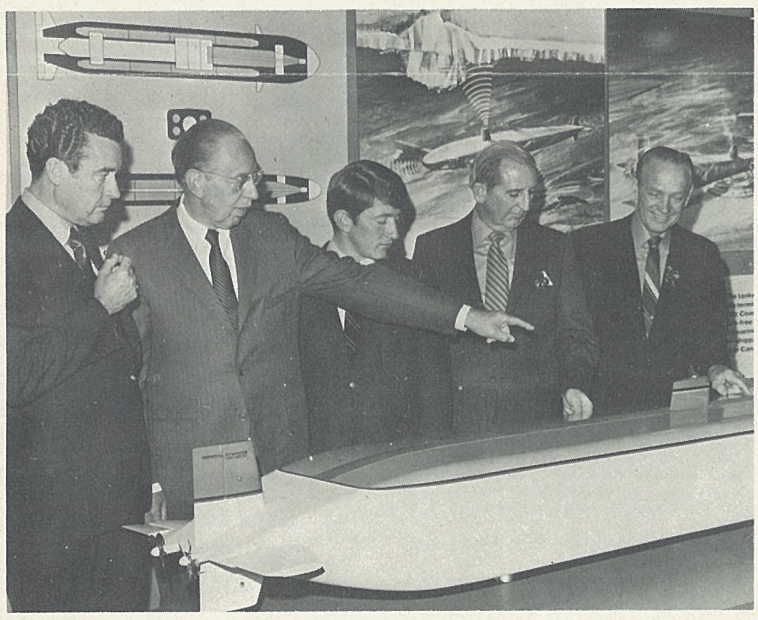
Sophisticated navigation and sonar systems would be used and Winram said long-lasting sonar transponder beacons could be placed along the ocean floor for "buoy hopping" in areas along the route where precision navigation would be necessary.

Studying feasibility of submarine tankers is not new for General Dynamics. Information developed by Electric Boat Division in the late 1950s in a U.S. Maritime Administration study, coupled with nuclear reactor technology developed since that time, provided a basis for the recent development work.

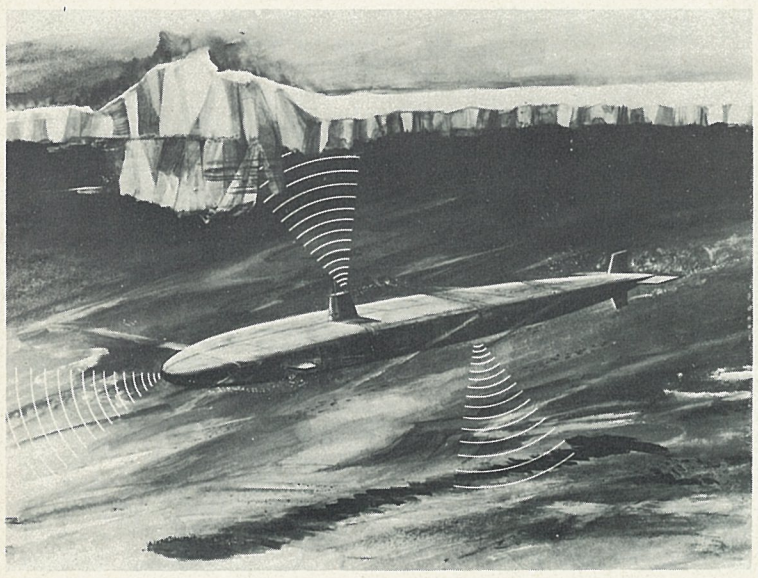
Winram said design and construction of the proposed sub tanker is "well within the state of the art and we believe that lower costs can be obtained than with alternative systems."

Adoption of the submarine system by the oil companies is expected to be influenced by several major factors including size and location of additional massive oil reserve finds, continuation of some form of U. S. oil-import protective policy, and the fate of the Trans-Alaskan pipeline.

"We in General Dynamics have been pleased to have the opportunity to work on what may well be the world's first great commercial undersea transport," Winram said.



SUB TANKER TECHNOLOGY—Sum Winram, second from left, points out features on nine-foot model of General Dynamics proposed submarine oil tanker for, from left, L. I. Medlock, Ronald W. Pittman, D. J. LaBorde, and Chauncey F. Clarke. Medlock, director of reliability control for Convair Aerospace-SD, was executive sponsor for Convair Management Association meeting at which Winram spoke and model was shown.



SAFER NAVIGATION — Artist's concept of nuclear powered submarine tanker indicates use of sophisticated sonar equipment to navigate beneath ice floes in the Arctic. Sub tanker has been proposed by General Dynamics as a reliable, economical and flexible means of transporting oil from Arctic to ice-free ports in North Atlantic.

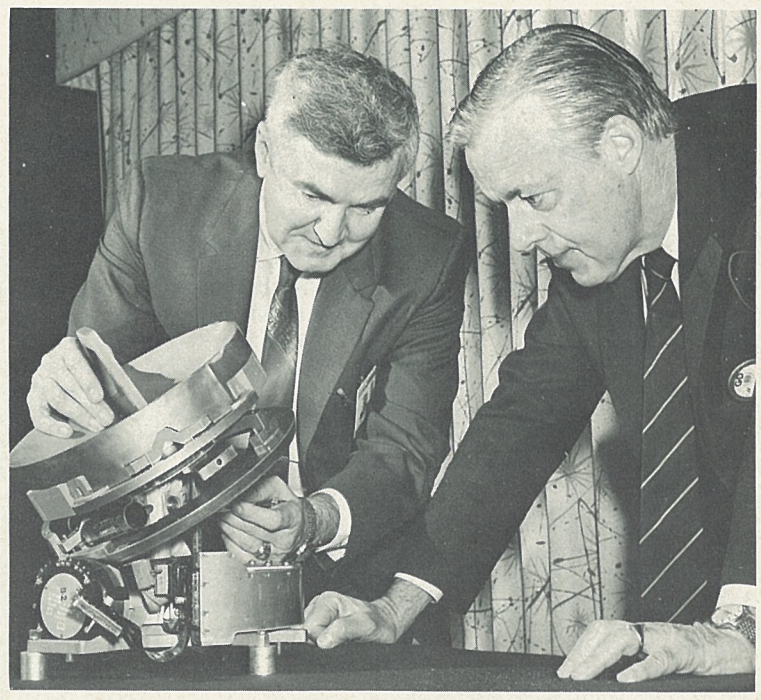
Haflinger, Ressler Active in Symposium

Dan Haflinger, DatagraphiX engineering, chaired a technical session on graphic displays and image processing and Paul Ressler, DatagraphiX marketing, gave a paper during a biomedical symposium in San Diego, Feb. 22-24.

Co-authored by Haflinger and Ressler, the technical paper, "Computer-generated movies — a tool for research and education," was given during the afternoon graphic displays session on Feb. 24.

Dick Thoman, manager of display engineering for Electro Dynamic Division's Electronics operation, also presented a paper on "Recent advances in display systems."

General chairman for the three-day symposium at Sheraton Inn was Paul Sherertz of Convair Aerospace Division's San Diego operation.



CLOSE INSPECTION — David S. Lewis, Chairman of the Board, right, receives briefing from program director John Guthrie on guidance seeker antenna platform proposed by General Dynamics for U. S. Navy's Harpoon anti-ship program. General Dynamics team, supported by Boeing and Honeywell, submitted its cost response and executive summary on Harpoon March 23.

People Mobility

Personnel Transfers Within GD

(Following are recent personenl transfers within General Dynamics. In parentheses are dates when individuals joined the company.)

ROBERT H. ROSS (1967) from Convair Aerospace-San Diego to Electro Dynamic-San Diego as cost estimator; **BRUCE D. CALDER** (1966) from Convair-SD to ED-SD as engineer; **JAMES F. BROOKS** (1970) from ED-SD to data processing supervisor, Convair-SD; **JAMES W. CROOKS JR.** (1944) from Convair-SD to engineering specialist, ED-SD; **NORMAN HOWELL** (1961) from Convair-SD to ED-SD as senior engineer; **ROBERT E. MOORE** (1963) from Convair-SD to design specialist, ED-SD; **LOUIS M. WHITNEY** (1956) from Convair-SD to ED-SD as industrial relations representative; **ERNESTO L. CASCO** (1958) from Convair-SD to engineer, ED-SD; **LARRY M. STORCK** (1967) from Convair-SD to ED-SD as facilities engineer; **BOYD A. CHRISTENSEN JR.** (1965) from Convair-SD to senior engineer, ED-SD; **HAROLD F. LEE** (1966) from Convair-SD to ED-SD as senior engineering writer; **SHERMAN W. COHEN** (1963) from Convair-SD to engineer, ED-SD; **EVAN C. MADSEN** (1954) from Convair-SD to senior engineer, ED-SD; **JAMES E. SANDERS** (1954) from Convair-SD to test engineer, ED-SD; **MELVIN B. FOLKERT** (1963) from Convair-SD to ED-SD as engineering manager; **RUSSELL G. THOMPSON** (1967) from Convair-SD to engineer, ED-SD; **STANLEY C. MAKI** (1956) from Convair-SD to ED-SD as design specialist.

Four More F-111Es Scheduled To Join Fighter Wing in England

Four more F-111Es were slated to join the 20th Tactical Fighter Wing in Upper Heyford this week, filling up one squadron and starting another.

Two of the four aircraft were to go to the 77th Tactical Fighter Squadron, giving that unit a full complement of 24 aircraft.

The other two F-111Es were ticketed for the 55th Tactical Fighter Squadron. This was to be the first deliveries to that unit.

Deliveries to the 79th Tactical Fighter Squadron were completed earlier this year.

The F-111Es were deployed from Cannon AFB, N. M. to Pease AFB, N. H., from which point they spanned the Atlantic.

Through mid-March, all F-111Es at the English base had logged over 2,821 hours of flight on 791 sorties.

Meanwhile, the second contingent of 52 members of the F-111 Field Team arrived at Upper Heyford. The first wave of 80 had arrived earlier in the month.

The 132-man field team will be at the base about four months to update the "E" aircraft.

BUYING REPS — Quincy Shipbuilding Division was host recently for two-day conference of divisional volume purchasing coordinators and buyers. Shown during one of sessions are, from left: Pat Sapone, materials manager, Electro Dynamic operation, Avenel; Terry White, buyer, Quincy; Ralph Liepold, volume purchasing coordinator, Electric Boat; Dick Pelino, purchasing agent, Stromberg-Carlson, Rochester; Russ MacLeod, senior buyer, Canadair; George Furnival, volume purchasing coordinator, Canadair; Carlton Barlow, Corporate volume purchasing coordinator.

SAN DIEGO EDITION

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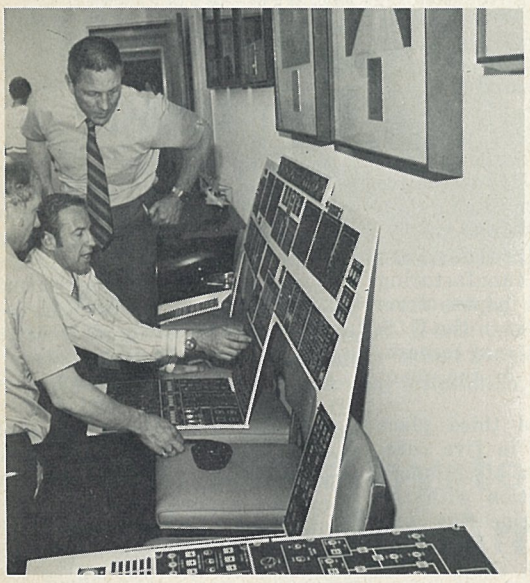
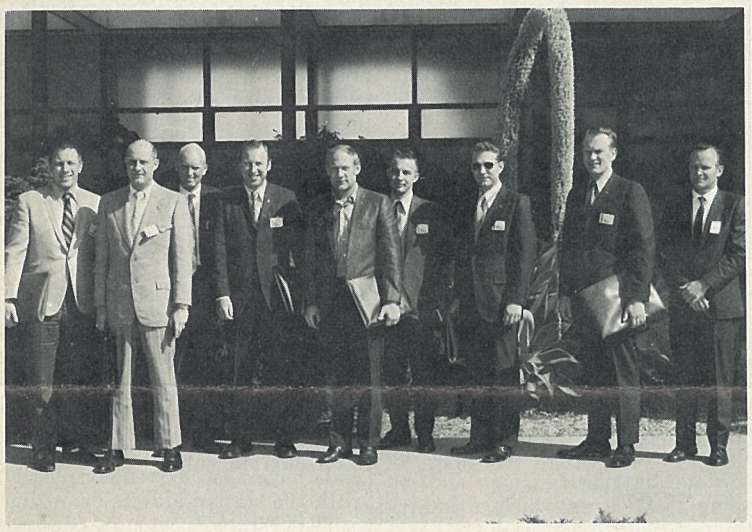


SHUTTLE SESSION — Astronauts Buzz Aldrin, Jim Lovell, and Jack Swigert discuss plans for location of instruments in Space Shuttle booster crew station (left photo) during informal discussion in conference room at Kearny Mesa factory. In center photo, Ivan Rattinger, second from right, Space Shuttle deputy program director for Convair Aerospace-SD, greets Warren North, deputy director of NASA crew systems division. Others, from left, are Lewis Allen, technical assistant for the NASA flight crew integration division; Bob Roberts of the General Dynamics field office in Houston; and Dick Keehn of the Convair Aerospace-SD Space Shuttle staff. Photo at right shows astronaut Hank Hartsfield pointing out features on booster cockpit panel for a NASA staff member.



ASTRONAUTS VISIT — NASA astronauts at Convair Aerospace SD's Kearny Mesa plant April 1 for Space Shuttle crew station mockup review, from left, were Jack Swigert, Tom Stafford, Gordon Fullerton, Jim Lovell, Buzz Aldrin, Pete Peterson, Hank Hartsfield, and Bo Bobko. Warren North, right, is deputy director of the crew systems division at NASA's Manned Spacecraft Center in Houston.

Electro Dynamic-SD Move Progressing

Relocation of Electro Dynamic-SD personnel from Lindbergh Field to Bldgs. 1 and 33 at Kearny Mesa is progressing smoothly, Frank Hickey, manager of administration, said last week.

"We are making the move in increments over an extended period so the relocation can be achieved as smoothly as possible and with minimum impact on work in progress," Hickey said. "We have no firm completion date but the relocation will be completed this year."

Bldg. 33 at Kearny Mesa will be totally occupied by Electro Dynamic-SD manufacturing and support departments, quality assurance personnel, and engineering organizations that are laboratory-oriented.

Bldg. 1 will be occupied primarily by Electro Dynamic Division Electronics operation functions but with some areas continuing to be occupied by Defense Contract Administration Services, Defense Auditing Agency, and Convair Aerospace-SD.

Electro Dynamic-SD and Convair Aerospace-SD will share use of the medical facility and the employment lobby on the first floor. Industrial relations offices for both Electro Dynamic-SD and Convair Aerospace-SD and purchasing functions for Electro Dynamic-SD also will occupy the first floor.

Executive offices for Jack L. Bowers, Electro Dynamic Division president, and William E. Bratton, vice president and general manager of the Electronics operation, and members of their staffs occupy the second floor. Marketing functions also are located on this floor.

Defense Contract Administration Services offices, serving both Convair Aerospace-SD and Electro Dynamic-SD, remain on the third floor. Electro Dynamic contracts and legal departments also are on the third floor and controller functions are on the fourth floor.

Occupying the fifth floor will be offices of Electro Dynamic-SD management systems, configuration management, plant engineering, and office services functions and the Defense Auditing Agency. Engineering departments will be on the sixth floor.

"We appreciate the excellent cooperation being received from all personnel involved in the move," Hickey said. "This is making possible expeditious relocation of people, equipment, and material with a minimum of difficulty."

AEROSPACE PILOTS VISIT S.D. PLANTS

Sixteen Air Force and Navy officer students from the Aerospace Research Pilots' School at Edwards AFB, Calif., visited Convair Aerospace-SD last Friday (April 9) for a series of technology briefings and tours at the Kearny Mesa and Lindbergh Field plants.

Buoy Systems Contract Seen As 'First Step'

Electro Dynamic-SD has been selected by the National Oceanic and Atmospheric Administration (NOAA) to produce five or six engineering experimental phase (EEP) ocean platform systems (environmental data buoys) for use in the Gulf of Mexico.

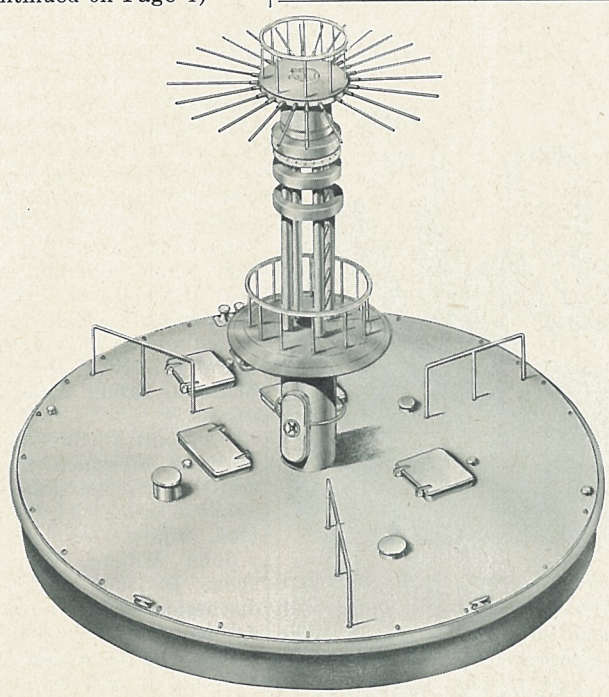
Jack L. Bowers, Electro Dynamics Division president, called the award for about $3 million the first step toward achieving large-scale monitoring of ocean weather and said the buoys will use techniques and background previously developed for Office of Naval Research ocean data stations and U.S. Coast Guard large navigational buoys.

The EEP buoys, scheduled to begin service late this year, will be operated by NOAA with the cooperation of the Coast Guard.

Bowers said that in addition to providing environmental data, the buoys will assure Gulf Coast communities of faster, more accurate hurricane warnings and also will report weather information useful to the fishing fleet, resort operators, farmers, and weather-affected business firms.

"We are sure this Gulf of Mexico project also will demonstrate the value of expanding the pro-

(Continued on Page 4)



NEW BUOY — Artist's drawing shows engineering experimental phase (EEP) ocean platform system to be produced by Electro Dynamic Division for National Oceanic and Atmospheric Administration. Hull will be like that of Coast Guard large navigational buoy but superstructure will be modified to facilitate mounting of sensors, which are not shown in drawing.

Astronauts View Shuttle Mockup

Eight NASA astronauts and 20 other representatives from five NASA centers attended a Space Shuttle booster crew station mockup review April 1 at Convair Aerospace-SD's Kearny Mesa plant.

Herb Rogers, chief engineer for the Convair Aerospace Division shuttle program, was master of ceremonies for a series of technical briefings and gave an overview of the booster crew station and recently completed mockup.

Propulsion systems were discussed by Joe Streetman, avionics subsystems by Howard Newman, guidance and controls by Al Nelson, and controls and displays by Don Farr.

During the afternoon, the visiting astronauts checked displays showing tentative placement of displays and controls in the crew station mockup. Based on this review, they prepared review items discrepancy (RID) forms which were discussed in a meeting with Convair Aerospace and North American Rockwell representatives the following day in Downey.

Lee White, a Convair Aerospace-SD engineering test pilot, provided informal briefings for the astronauts in the booster crew station mockup at Kearny Mesa and led them through use of its "instrumentation" in simulated flight operations.

Astronauts present for the review included:

Navy Capt. James A. Lovell Jr., command module pilot for Apollo 8's maiden voyage to the moon and spacecraft commander for the Apollo 13 flight.

Col. Edwin E. "Buzz" Aldrin, lunar module pilot for Apollo 11 and second man to walk on the lunar surface.

John L. Swigert Jr., former civilian test pilot and command module pilot for Apollo 13.

Col. Thomas P. Stafford, spacecraft commander for Apollo 10 and a member of the crew for the Gemini 6 mission.

Gordon Fullerton, a bomber pilot and Air Force flight test school graduate.

Henry Hartsfield, a fighter pilot and Air Force flight test school graduate.

Karol Bobko, a 1959 U.S. Air Force Academy graduate and fighter pilot.

Donald Peterson, a fighter pilot and graduate of the Air Force flight test school.

Other key NASA representatives present included Warren North, deputy director of the NASA crew systems division, and Lewis Allen, technical assistant for the NASA flight crew integration division, both from the Manned Spacecraft Center in Houston.

Ivan Rattinger, Space Shuttle deputy program director for Convair Aerospace Division, welcomed the group. Representatives from each shuttle booster technical area were present throughout the day to answer questions and discuss work accomplished under the Phase B shuttle contract.

Robert A. Lynch, head of the shuttle booster preliminary design group at Convair Aerospace-SD, said the visiting astronauts and other NASA representatives seemed pleased with design of the booster crew station and mockup and had relatively minor recommendations for relocation of displays and controls.

"Much of the discussion at the April 2 meeting in Downey related to functions the astronauts will be expected to perform during the booster flight and the extent to which they will back-up and augment automatic controls," Lynch said.

(Continued on Page 4)

SAFETY LAURELS — Representatives of Convair Aerospace-SD departments receiving 1970 safety trophies pose with Lyman Josephs, left, vice president and general manager, and M. V. Wisdom, right, director of industrial relations. Holding trophies, from left, are George Jacob for Dept. 101, Bob Franklin for Depts. 756 and 731, and Roger Lynch for Dept. 985.

Craftsmanship Program 'Tops'

Lyman C. Josephs, Convair Aerospace-SD vice president and general manager, has received a letter from Lt. Gen. Earl C. Hedlund, director of the Defense Supply Agency, expressing appreciation for courtesies extended him and members of his staff during their visit to the Lindbergh Field plant March 16 for presentation of the third Craftsmanship Award.

"The Craftsmanship Award ceremony . . . was one of the best I have ever participated in and the interest you have generated in the Convair Craftsmanship program is outstanding," General Hedlund wrote.

"Your new brochure hits the nail on the head by stating 'Craftsmanship cannot be inspected in, it must begin with each person . . . no matter what his or her job. This is axiomatic to good management but few managers have been more successful in getting everyone's voluntary involvement and acceptance of this prerequisite to top quality performance.

"As I indicated during the award presentation, it is important for all of us to get out and spread the Zero Defects philosophy as a means of improving the quality of this Nation's output and, at the same time, keeping our costs at a competitive level.

"Craftsmanship is the key to pride in yourself, your company and in your Nation, and I believe your company has set a pattern for all industry to follow in this regard.

"Again, my sincere thanks to you and your entire Convair team for an enjoyable visit and your expressed desire to improve on your already enviable performance record."

Best '70 Safety Records Recognized at Banquet

Three trophies for most outstanding 1970 safety records by Convair Aerospace-SD departments were awarded by Lyman C. Josephs, vice president and general manager, March 26 at a safety awards banquet for supervisors of the winning departments.

Winners in the three competion categories were:

Group 1 — production machine shop Dept. 731 and engineering test support Dept. 756 under Bob Franklin.

Group 2 — data processing Dept. 101 functions under George Jacob.

Off-site — launch vehicle programs Dept. 985 functions at Vandenberg AFB under Roger Lynch.

The Group 1 competition was for departments with "high safety exposure factor" areas and Group 2 was for other departments. Competing for the off-site honor were departments at Vandenberg and the Eastern Test Range.

M. V. Wisdom, director of industrial relations and master of ceremonies for the awards banquet at the River Valley golf course restaurant, commended Del Dimmitt, chief of safety and fire, and his safety personnel and Stan Sharp, manager of industrial security, for developing a series of in-plant safety education classes attended by 410 supervisors and 1,562 other employes last year.

This was credited, in part, with reducing serious medical cases from 191 in 1969 to 141 last year — a 29 per cent reduction. Unfortunately, two fatalities — one in an aircraft crash at Edwards AFB and the other in an industrial accident at the Lindbergh Field plant — marred the San Diego operation's overall safety record for the year.

Wisdom said an analysis by the wage and salary section of first-level supervisors in departments receiving the 1970 safety trophies showed them to have higher than average proficiency ratings and salaries.

"This didn't surprise me," Wisdom said. "I think it's indicative that safety is something that goes along with performance. It's a matter of attitude. It's a matter of how you discipline yourself and your people — and what kind of quality work they do."

Josephs said his experience also has shown that people with good safety records also have good performance records.

"I think on the whole our safety program at Convair is a good one and I'm sure we're going to meet our objective for this year," he said. The objective is to reduce frequency of accidents to 15 per cent less than the 1970 record.

Both Josephs and Doug Caldwell, a guest from General Dynamics Headquarters' staff, discussed the federal Occupational Health and Safety Act of 1970 under which the Secretary of Labor will establish new safety standards affecting more than 60 million employes in four million business and industrial firms throughout the country.

"I don't think we at Convair have any serious safety problems," Josephs said. "But we must continually do a better job of making our plants a safer place in which to work."

Dimmitt said the San Diego operation in the past has taken a negative attitude to safety by reviewing accidents after they happen and assessing negative points in the safety contest standings for the accidents and for safety violations found during inspections.

"This year we are going to try to accentuate the positive," he said. "We also are going to award plus points — five points, for example, for near-miss accidents and property damage reports."

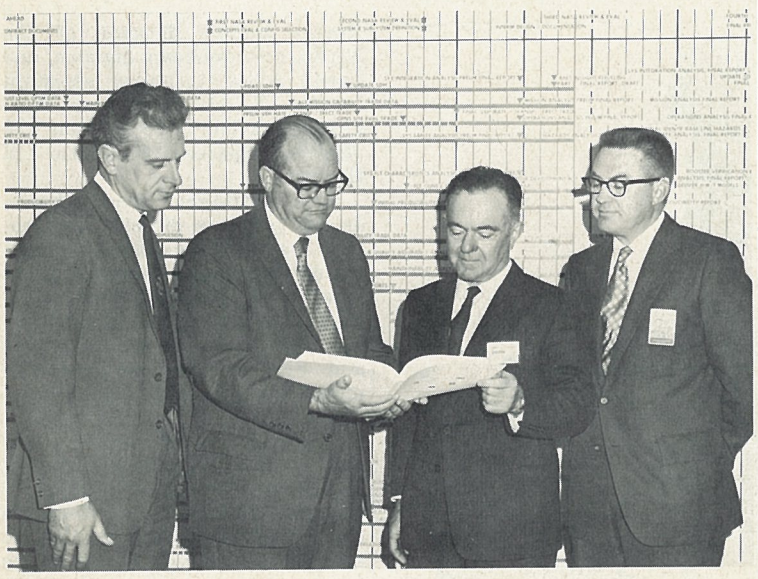
Dimmitt said this will enable the safety engineers to investigate the "accident that almost happened" and take action to eliminate problems that could be the cause of accidents.

Sharp emphasized the need for supervisors discussing safety with their employes — and particularly new employes — as a means of opening better lines of communication and so the employe will be more concerned about reporting potential safety hazards as they arise.

He pointed out that safety is an area in which the company and the employe share a common goal of protecting the employe from injury.

John Milling, Convair Aerospace Division controller, in a discussion on the "economics of accidents" noted that the San Diego operation last year lost $700,000 in production time because of employes being unable to work. He also noted that the San Diego operation had paid $468,000 during the year in workmen's compensation premiums for

(Continued on Page 4)



SHUTTLE VISIT—Handel Davies (second from right), technical director for British Aircraft Co., reviews space shuttle plans with Dr. Donald Dooley, Convair Aerospace-SD vice president and space shuttle program manager, during visit March 24 to Kearny Mesa Plant. Looking on are Lyman Josephs, right, Convair Aerospace-SD vice president and general manager, and Brian Raybould, left, resident British Aircraft Co. space shuttle task team leader at North American Rockwell facility in Downey, Calif. Davies also conferred with State Department and NASA officials in Washington during his visit to the U.S.

National Plant Maintenance Awards Go to Oliver, Kiener

Two Convair Aerospace Division employes from San Diego recently received honors for themselves as well as the Corporation for outstanding achievements in industrial maintenance.

G. W. Oliver, Dept. 250 lubrication engineer, received first place award in Corrective Maintenance on Equipment category while E. G. Kiener, Dept. 250 plant construction engineer, placed second in Electrical Equipment Maintenance.

San Diego operation was honored for its encouragement and support of employe's innovative and practical ideas in solving day-to-day maintenance problems.

The awards are presented annually by Modern Manufacturing magazine, based on papers from most major companies in the U. S. This is the only national recognition for excellence in the plant maintenance field.

First, second and third place awards were given in five categories and presented at ceremonies held in conjunction with the national Plant Engineering and Maintenance Show held last month in Cleveland, Ohio.

Oliver's winning paper on "Filtering Clears Controls" explained his research into the mushrooming repair costs on hydraulic components for numerical control machine tools.

He found the principal problem was contaminated oil and suggested installation of an ultra fine filtration system to clean dirty oil which was damaging machine parts.

Implementation on three units at the Lindbergh Field plant cut repair costs $22,468 a year and virtually eliminated component failure.

Kiener submitted a paper describing corrective action taken by Convair Aerospace in replacing a 50-year-old transformer substation, in service since World War II, before failure could occur.

The paper detailed steps taken before changeover, including coordinating specifications and bidding procedures which ultimately cut lead time by two months.

Expounded were site preparation and feeder installation accomplished before the new unit was delivered. It explained how changeover and hookup were completed over a three-day weekend.

A report on this year's award-winning projects was published in the March issue of Modern Manufacturing. The magazine lauded General Dynamics for "turning 13,000 employes into conservation watchdogs with signs, talks, and awards."

The article states "Benefits accrue not only to maintenance, but to plant operations as well. Winning ideas return . . . hundreds of thousands of dollars in improved productivity and greater manufacturing efficiency."

R. D. Leonard, chief of facilities engineering, said "Competition for the awards was keen and I take great pride in the accomplishments and awards won by Oliver and Kiener. Additionally, it is most unusual for any company to have more than one winner."

Radio Station Retrieves Data From XERB-1

A "shore collection center" radio station that was designed by Electro Dynamic-SD ocean data systems personnel now is being operated around-the-clock for the National Data Buoy Development Project Office by Coast Guardsmen at 7th Coast Guard District Headquarters in Miami, Fla.

Roy Woodle, Electro Dynamic-SD program manager for National Data Buoy Programs, said the station is being used at six hour intervals to retrieve data from the experimental environmental reporting buoy (XERB-1) moored in the Atlantic about 125 miles east of Norfolk, Va.

Woodle said the new station also is scheduled to be used to obtain and process data from other buoys the Coast Guard plans to station in the Gulf of Mexico.

The "shore collection center" was designed, assembled, and tested at the Lindbergh Field plant before being disassembled and shipped to Miami late last year.

Two Electro Dynamic-SD representatives — Bob Lewis and Dick Nichols — are assigned to the station until July 15 to provide technical support. Don Abernathie and Jack Heming also were in Miami for three months to assist with installation and checkout of the station, preparation of computer software for use with it, and training of Coast Guard personnel to operate the facility.

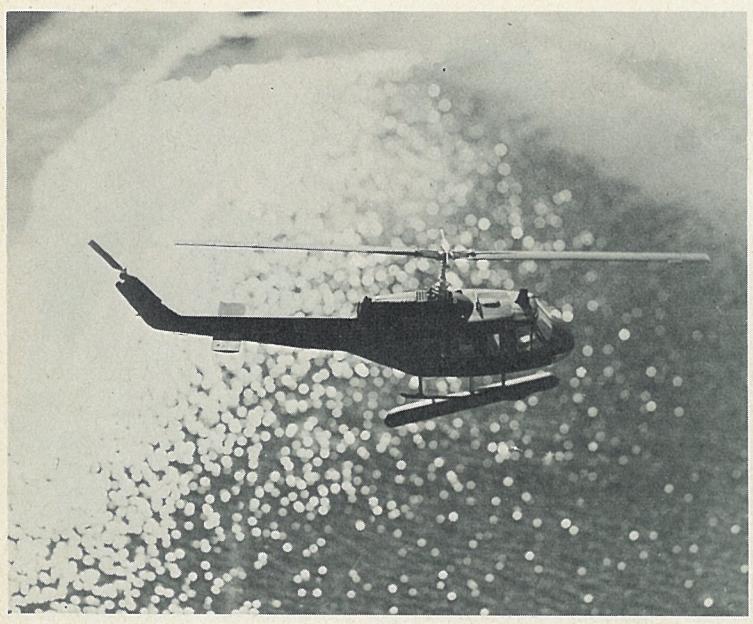
Woodle said Coast Guard officials have been extremely pleased with the station and its operation.

The Electro Dynamic-SD mobile data center at Scripps pier in La Jolla had been used for XERB-1 data retrieval before the new station was placed in operation in Miami. The mobile data center remains in operation to support oceanographic buoys in the Pacific Ocean being used in the Office of Naval Research's North Pacific study.

XERB — 1 gathers and stores data in a computer hourly on air and water temperature, barometric pressure, wind, dew point, solar radiation, precipitation, and surface-water currents in an area where northeast storms seem to gather considerable energy.

Woodle said the data, gathered at six-hour intervals by the new station in Miami, is enabling the Weather Bureau and other agencies to improve off-shore and coastal weather forecasting.

NATIONAL HONORS — Pictured after receiving first place gold medallion and Citations for Excellence are, from left, R. D. Leonard, chief of facilities engineering; W. J. Stanley, former manager of plant engineering; C. L. Hartshorn, Corporate plant and facilities engineer; E. G. Kiener, second place winner; George Oliver, first place winner; and John J. O'Connor, editor of Modern Manufacturing magazine, who presented awards.



ALARM "HUEY"—What appears to be full size helicopter hovering over open water is actually 18-inch model suspended above rain puddle. Electronics operation in San Diego is developing battlefield surveillance radar system for installation aboard modified Bell "Huey."

Surveillance System Developed For Army

Design of a new battlefield surveillance system is currently under investigation by the Electronics operation of Electro Dynamic Division.

Under a $1.3 million research contract awarded last June by the U. S. Army Electronics Command at Fort Monmouth, New Jersey, the project will demonstrate the feasibility of the Alerting Long-Range Airborne Radar for MTI (ALARM) system concept. The ALARM system will ultimately consist of an airborne platform carrying an MTI (Moving Target Indicating) radar, a ground station and a data link. The current research effort includes a detailed study of all aspects of the system plus an experimental evaluation of the airborne portion of the system.

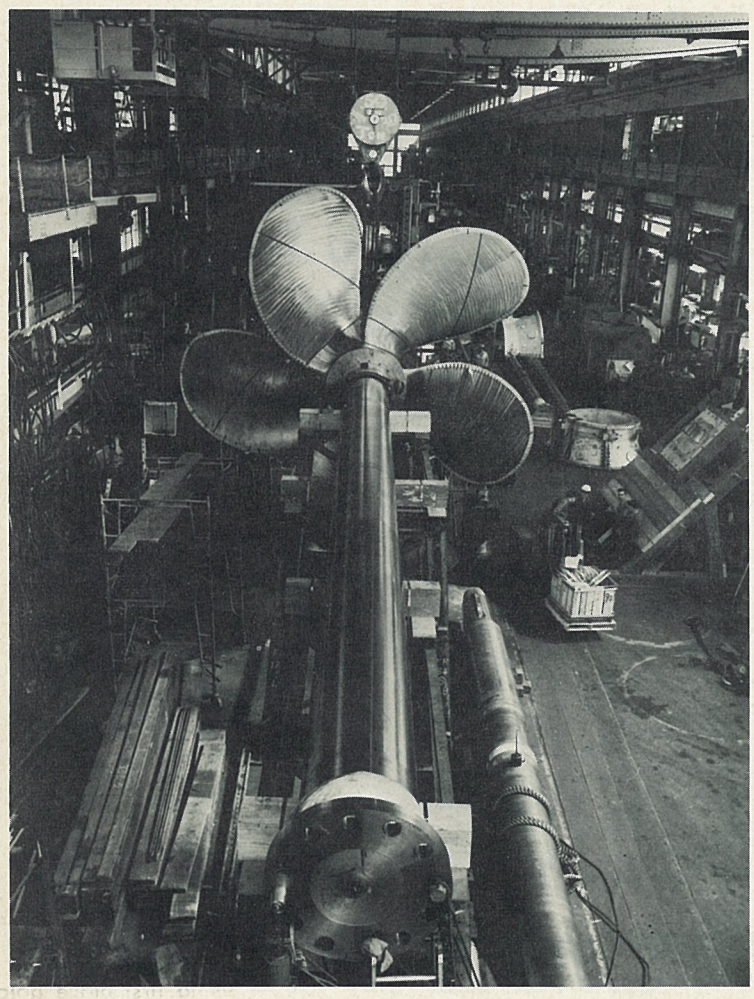
The Electronics operation has prime responsibility for the project with Convair Aerospace Division in San Diego and Bell Helicopter Co. also involved in the task. Bell is modifying one of its UH-1H "Huey" helicopters for the project to include an autopilot. Convair will further change craft configuration to incorporate the radar system and perform flight test operations at the Lindbergh Field plant.

Bob Baker, project manager, said the modified "Huey" to be used in the experimental airborne system will arrive at Convair's Lindbergh Field plant sometime in June. After installation and checkout of the MTI radar, the final 6 months of the 20-month contract will be devoted to data acquisition and analysis. During this phase parameters will be determined for operational systems, Baker said.

Conversion of the standard "Huey" to accommodate ALARM includes adding provisions for stowing and scanning an 18-foot long radar antenna and the autopilot installation to improve the attitude stability of the craft.

Among radar changes planned, according to Baker, are conversion from side-looking to PPI-type (Planned Position Indicator) radar; modification of the radar MTI processor; development of a new antenna scan/stabilization system.

Key people working on the project and responsibilities beside Baker include, Bill Sadler, antenna systems; Jim Boelens, radar electronics; Graham Henstock, display; Stan Logue, system design and analysis; Walt Shepherd, data acquisition and analysis; Bill Garcia, Convair Aerospace support.



CUSTOM FITTING — It was perfect fit at Quincy Shipbuilding Division recently as giant propeller for Doctor Lykes was pre-fitted to its shaft. The 45-ton, five-bladed propeller will soon be fitted to ship, world's largest dry cargo commercial carrier, under construction at Quincy. The shaft alone weighs more than 53 tons, is 48 feet long and has an average diameter of nearly 30 inches.

Pilot Discusses F-111's Round-Clock Capability

Capt. John Francis, veteran Air Force F-111 pilot, in an article appearing in the April issue of Air Force Magazine, states:

"It (the F-111) opens to the Air Force nighttime, all-weather operations at low altitude," Captain Francis wrote. . . . "It can take the war to the enemy any hour of any day of the year. He would have no time for rest, psychological relief, rebuilding and resupply, or training.

"Other fighters and bombers have left the enemy undistrubed as much as eighty-five per cent of the time because of their inability to fly safely or effectively at night and in weather. The F-111A has taken this safe time from the enemy."

Captain Francis called the interial platform and computers in the inertial-navigation system "phenomenally accurate."

"It is this system," he wrote, "that makes the F-111A capable of around-the-clock, all-weather delivery . . .

"Here, then, is the first of those missions that no other aircraft can accomplish. Interdicting the enemy's supply lines (bridges, passes, truck parks) and airfields at any time, in any weather deprives him of an option he once had: digging in by day, repairing and moving by night."

Captain Francis said the F-111A's "highly accurate" navigation equipment — through the attack radar tie-in — enables the weapons system operator to maintain position accurately within hundreds of feet, at all times.

He called the F-111's ballistics computer a "pilot's dream." "The computer can determine continuously the impact point of any bomb, given the aerodynamic characteristics of the bomb and the altitude, airspeed, and vertical velocity of the aircraft. It then relates this information to the target's location and continuously updates a release time for the bomb . . .

"For the first time in radar-directed, level bombing, it is not necessary to fly straight and level on the bomb run. Altitude and airspeed can be changed without affecting bombing accuracy. Since these two items are essential information for the enemy's air defense system, it gives you a decided advantage over the defenses . . .

"Since you can vary altitude and airspeed continuously, you can make a toss-bombing or dive-bombing attack with the same accuracy as in a level bomb run. You no longer have to overfly the target area.

"You can start a pullup miles short of the target, release in a climb, and break away, diving back to low-level concealment while the bombs continue to the target.

"If you use the offset mode of the attack radar and bomb-nav-computer, you can further protect yourself from enemy defenses by choosing an axis of attack that positions a mountain range between the target and yourself. You can toss the bombs over the range.

"In this mode, without seeing the target, the weapon system operator aims on an offset point, which he knows is so many feet in such and such a direction from the target.

"Remember, if we cannot see the target area on our radar, the normal defense radars in the target area cannot see us. In other words, an enemy's first indication of attack would be weapons detonation. This is the tremendously flexible F-111A doing radar bombing."

Captain Francis called the F-111"s terrain-following-radar (TFR) the "marvel of the aeronautical world."

"It is the TFR," he wrote, "that opens up the arena of low-altitude, night, weather operation . . . It frees you from the stick and rudder work and lets you concentrate on other duties of the aircraft commander . . ."

Captain Francis said the TFR gives a pilot the ability to fly the F-111 where no other aircraft would dare.

"I would take my F-111A down into the Grand Canyon at night when the overcast was below the rim," he said. "In fact, one of our training routes does take us into the canyon. No other aircraft in the world could survive in that kind of environment."

The long-time (2½ years) F-111A pilot commented favorably on many other features of the aircraft including:

Crew module: ". . . gives the crew members the confidence necessary to operate in the dangeruos flight envelope for which the F-111A was designed."

Sweep-wings: ". . . easy and natural to operate . . . it is an outstanding engineering job."

Safety: ". . . the pilot doesn't get his feeling of safety from statistics. He gets it from knowing the aircraft and its systems, and from knowing how well they work for him . . ."

Cockpit: ". . . comfortable and well pressured. There is no need for parachutes. Fatigue is reduced on long missions. Instruments are well placed and easy to read. Caution lights quickly catch the crew's attention."

Engines: "Acceleration above Mach 1.0 is outstanding . . . and very rapid to Mach 2-plus."

"I have tried to give you a view from the cockpit — the special view that F-111 crews have," Captain Francis concluded. "For our particular mission, we do not need a different airplane. What we need are new techniques to fit a revolutionary aircraft to a new area of conflict.

"The F-111 provides capabilities that are found in no other aircraft. It is unique, and, when the chips are down, unique means priceless."

REDMOND CHAIRS GEOSCIENCE GROUP

Dr. J. C. Redmond, manager of research and development, at Fort Worth, attended the annual session of the Institute of Electrical and Electronic Engineers in New York recently. He is chairman of the Geoscience Group within the organization.

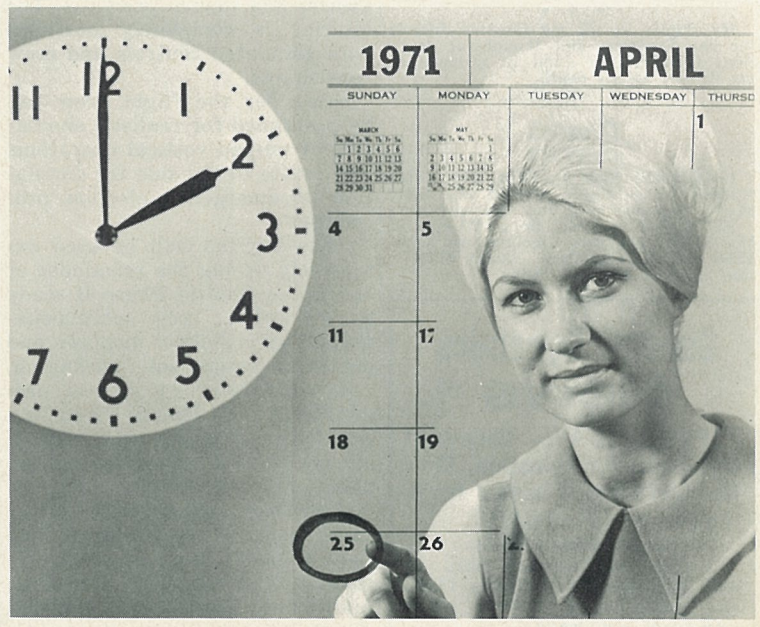
People Mobility

Personnel Transfers Within GD

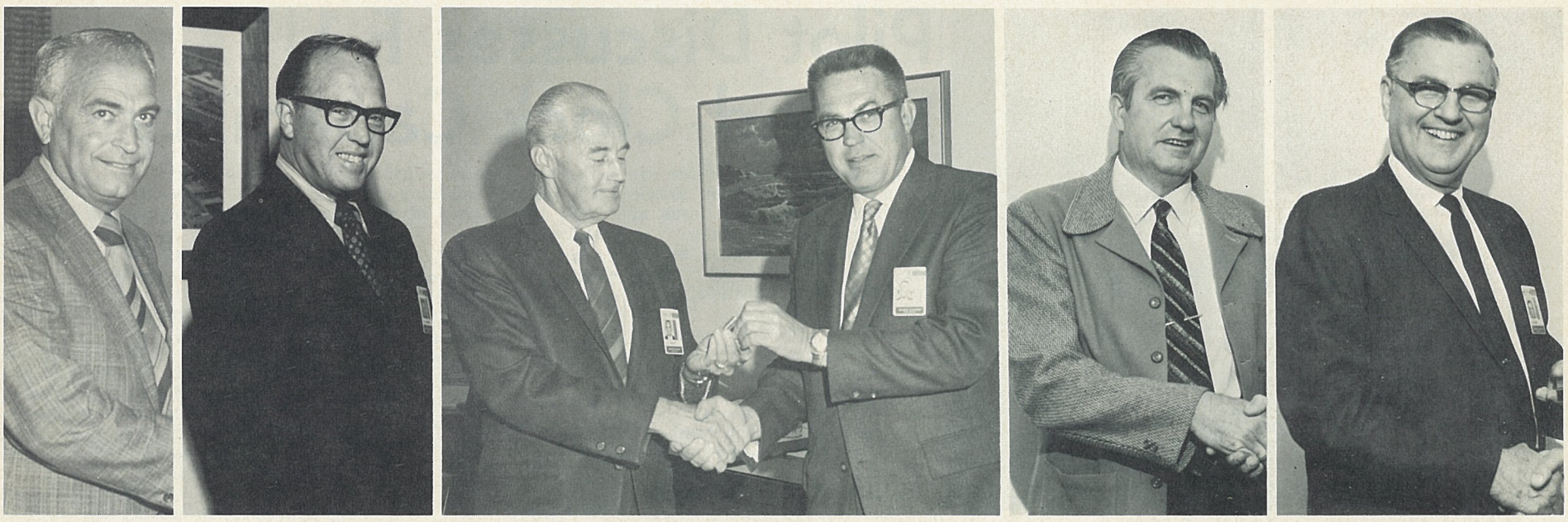
(Following are recent personnel transfers within General Dynamics. In parentheses are dates when individuals joined the company.)

JAMES H. MASON (1950) from Convair Aerospace-San Diego to Electro Dynamic Division as assistant to the president; **WARREN R. HOOVER** (1951) from Convair-SD to senior engineer, ED-SD; **GERALD H. OWEN** (1957) from Convair-SD to senior engineer, ED-SD; **ROBERT F. MAWHINNEY JR.** (1955) from Convair-SD to ED-SD as senior research staff member; **DONALD G. MOODY** (1940) from Convair-SD to principal engineer, ED-SD; **ROBERT F. PATTERSON** (1956) from Convair-SD to ED-SD as technical buyer; **JARVIS H. STROMBERG** (1964) from Convair-SD to buyer, ED-SD; **STEVEN C. ESTERLINE** (1969) from Convair-SD to ED-SD as master scheduler; **ROBERT C. FERGUSON** (1950) from Convair-SD to design specialist, ED-SD; **FRANK L. HERRON** (1965) from Convair-SD to ED-SD as senior design assurance engineer; **EDWARD G. MC CLEAVE JR.** (1950) from Convair-SD to senior buyer, ED-SD; **CHARLES D. MC INTYRE** (1951) from Convair-SD to senior engineer, ED-SD; **DAVID N. KAHLER** (1954) from Convair-SD to ED-SD as an engineering manager; **BRUCE MC KAY** (1961) from Convair-SD to ED-SD as a marketing manager; **WALLACE S. PERKES** (1963) from Convair-SD to engineering specialist, ED-SD; **JOHN W. SLATTERY** (1966) from Convair-SD to ED-SD; **ALBERT ENDER** (1960) from Convair-SD to ED-SD as design specialist; **DONALD K. HALL** (1951) from Convair-SD to design specialist, ED-SD; **CARL C. DRAGILA** (1956) from Convair-SD to electronics project engineer, ED-SD; **ROBERT B. PURCELL** (1963) from Convair-SD to ED-SD as principal engineer.

KENNETH A. MORGAN (1955) from Convair-SD to design specialist, ED-SD; **RALPH F. KOSIC** (1956) from Convair-SD to design specialist, ED-SD; **PAUL C. SHERERTZ** (1962) from Convair-SD to engineering specialist, ED-SD; **ROBERT M. LEGER** (1953) from Convair-SD to ED-SD as engineering specialist; **PETE E. MARENHOLTZ** (1963) from Convair-SD to design specialist, ED-SD; **CARTER R. LEWIS** (1957) from Convair-SD to ED-SD as engineer; **TOMMY J. NILSON** (1956) from Convair-SD to test engineer, ED-SD; **KENNETH SAMPLES** (1966) from Convair-SD to ED-SD as electronics project engineer; **RONALD OKONSKI** (1959) from Convair-SD to senior engineer, ED-SD; **WESLEY S. SEVERSON** (1956) from Convair-SD to ED-SD as senior buyer.



SPRING AHEAD — Cheryl Mortera, Convair Aerospace secretary, indicates April 25 as beginning of Daylight Savings Time. You'll lose an hour's sleep when Daylight Savings Time officially begins at 2 a.m. that day.



SENIOR SERVICE — Five Convair Aerospace-SD men received 35-year service pins recently from Lyman Josephs, vice president and general manager. From left, they are Tony Berardini of Dept. 001-0, F. Russ Gaughen of Dept. 953-2, John S. Bryant of Dept. 046-0, Rudolph O. Funke of Dept. 045-0, and Lewis Fischer of Dept. 016-0. All joined the company in 1936 except for Funke, who has broken service dating back to 1934.

Log Book Entries

Service Emblems

CONVAIR

Service emblems due between April 1 and April 15.

Forty-five-year: Dept. 049, Walter R. Panke.

Thirty-five-year: Dept. 001, George J. Friel.

Thirty-year: Dept. 027, Olna D. McGraw, Floyd S. Rector; 222, C. W. Andreasen; 401, O. Q. Faucett; 509, D. Krause; 512, J. A. Gesiakowski, E. A. Zivolich; 537, E. C. Ewert, J. W. LeVine; 836, C. D. Duncan; 840, R. H. Lange; 989, E. H. Davies.

Twenty-five-year: Dept. 149, R. E. Rose; 407, R. Padilla; 834, Zola R. Reasoner.

Twenty-year: Dept. 015, Mary C. LaReau, A. D. Shaw; 027, M. J. Lynn; 110, D. H. Digges; 130, J. A. Birdsong; 143, D. L. Turner; 202, Dorothy R. Pinks; 250, V. E. Dobbs, E. B. Medina; 511, P. Stevens; 512, J. Strachan; 566, G. J. Kincaid; 570, R. S. Wentink; 761, W. C. Scott.

Fifteen-year: Dept. 015, L. Daniels, Lucille W. Laderoot; 057, Mary Bridger; 115, C. A. Johnston; 130, W. E. Fowler Jr., R. B. McConnell; 131, C. J. Colleton, H. A. Dreysse, W. M. Smith; 142, Dorothy L. Faucher; 148, Elizabeth J. Bishop; 149, Lena M. Walling; 191, G. W. Robertson; 204, J. L. Sinnott; 223, B. J. Vukotich; 228, Dorothy L. Powell; 250, H. Medeiros; 400, B. Cervantes, T. R. Laukemper, J. C. Waters; 401, Olga D. Kirk, E. D. Smith; 517, A. R. Thompson; 518, A. R. Reed; 524, D. H. McCoy, Frances K. Rohr; 565, Aldine J. Poe; 566, D. G. Dewey, J. R. Gardner, J. L. Heming; 572, J. F. Haskins; 578, C. A. Palosaari; 585, J. D. Weber; 731, C. E. Turner; 733, T. L. Duenez Jr.; 761, I. V. Steinberger; 836, L. R. Woody; 956, G. E. Ewald; 985, E. A. Millar; 989, J. L. Gray, R. Hertzberg.

Ten-year: Dept. 046, G. M. Amancio; 101, Marie E. Applegate, Barbara B. Clayton, Edna W. Upton; 141, R. W. Becker; 149, D. D. Paschen; 170, G. B. Hartmann; 191, R. K. Schmidt; 222, Virginia C. Cobb; 250, E. B. Jablonski; 591, W. P. Holloway; 840, E. C. Allen; 950, Mavis A. Humphrey; D. C. Mills; 985, A. F. Sanger.

Personals

CONVAIR

I wish to express thanks for the thoughtfulness of my Convair Aerospace Division friends in sending flowers and messages of sympathy after the death of my mother, Mrs. Gaetana Corrao.

Thelma Balistreri
Dept. 518-0

* * *

My sincerest thanks to the many Convair friends for the many acts of kindness and expressions of sympathy during my bereavement at the loss of my husband, Dennis.

Elise Liu St. Anna

* * *

My sincere thank you to all my Convair friends for the kindness shown to me and my family after the death of my husband, Don.

Edna L. Doty, Dept. 144-3

* * *

I wish to thank all my Convair friends for their cards, flowers, and expressions of sympathy upon the death of my wife, Mary.

Frank J. Wisenberg, Dept. 733 (ret.)

* * *

My thanks to all my Convair friends for the kindness and thoughtful donations to the heart fund in memory of my father, at his death.

Jean Hale, Dept. 221-2

Deaths

CONVAIR

McMURRY—Ross T., Dept. 250-0, died March 28; survivors include his wife, Marie, four brothers and four sisters.

ST. ANNA—Dennis, Dept. 031-0, died March 28; survivors include his wife, Elise and two daughters, Nalani Webster and Leilani St. Anna.

Awards

CONVAIR

Employe Suggestion Awards approved for week ending April 2:

K. R. Bailey, Dept. 507-0, $55; C. Caplaneris, 046-0, $43.10; N. Chaudoin, 733-0, $28.80; R. A. Cooper, 985-4, $15; R. Culver, 143-1, $15; R. M. Darling, 149-5, $15; T. L. Duenez Jr., 733-0, $15; L. C. Foust, 049-0, $7.50; E. T. Gahlbeck, 046-0. $25; A. Gonzales, 019-0, $85.50; J. R. Johnston, 820-0, $77.60; J. B. Julian, 027-0, $15; R. V. Lucero, 019-0, $15; C. P. McVay, 046-0, $24.05; N. Moffett Jr., 002-0, $15.70; L. M. Moore, 511-4, $30 (two awards); C. L. Parker, 149-8, $7.50; N. F. Peters, 574-3, $15; R. L. Plummer, 518-1, $89.60; F. L. Popham, 046-0, $24.05; J. D. Reading, 454-0, $15; W. E. Ritter, 031-0, $7.50; R. G. Sanders, 407-0, $53.20; E. Schroeder, 224-1, $25; D. L. Shuffler, 228-4, $24.10; B. Sullivan, 046-0, $25.35; G. Tompkins, 518-0, $15; W. B. Williamson, 027-0, $7.50; G. F. Wilson, 149-8, $306.80; T. L. Woodin, 491-1, $15; N. C. Ybarra, 046-0, $25.35; H. D. Zaragoza, 046-0, $15.

Employe Suggestion Awards for week ending March 26:

J. F. Batchelder, Dept. 046-0, $202; G. A. Berg, 780-4, $17; D. B. Boehmke, 780-1, $47.10; D. L. David, 584-0, $15; C. H. Fasching, 001-0, $7.50; C. M. Flores, 985-3, $226.90; S. E. Gates, 027-0, $188 (two awards); D. E. Howard, 001-0, $7.50; I. D. Howarter, 045-0, $15; C. L. Lawson, 046-0, $32.50; T. W. Luers, 149-6, $15; G. R. McCambridge, 001-0, $7.50; R. Minutello, 575-5, $15; L. M. Moore, 511-4, $75 (five awards); L. Peralta, 027-0, $29; D. D. Rousey, 002-0, $15; Jane Schoolcraft, 840-3, $25; J. J. Smith, 511-4, $45 (three awards); R. D. Thomas, 015-0, $15; M. H. Thrasher, 001-0, $7.50; G. E. Tuggey, 143-5, $20.70; H. R. Van Hoose, 149-6, $15; J. G. Walda, 046-0, $68.90; B. P. Wheat, 578-5, $126; C. E. Shane, 979-1, $15.

Rider-Driver

CONVAIR

RIDE WANTED—From Coronado to Kearny Mesa Plant starting April 26, 8 a.m. to 4:45 p.m. shift. Will pay bridge toll. Call Hester Held, 435-8483 or ext. 1165 LF.

General Dynamics News

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San Diego editorial offices:

Kearny Mesa plant, Bldg. 8, Mail Zone 104-61, P.O. Box 1128, San Diego, Calif. 92112. Phone 277-8900, ext. 3322.

Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P. O. Box 1950, San Diego 92112.

Astronauts See Shuttle Mockup

(Continued from Page 1)

"We will be taking another critical look at this entire area and also will be making some modification of display and control positions. After this is complete in a few weeks we hope to have some of the astronauts back for a follow-up review session."

The booster crew station mockup is 25 feet long, 25 feet wide, and 15 feet high and can be tilted 90 degrees for simulation of both ground and launch positions. The interior is completely outfitted with simulated controls and crew furnishings.

Seats for the flight crew can be positioned for realistic simulation of on-pad vertical operations and rotate to the side for simulation of emergency ejection procedures.

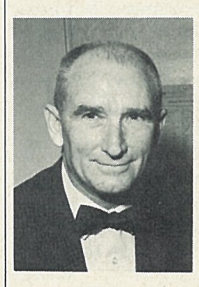
"The mockup will be used extensively during the remainder of the Space Shuttle Phase B study as we look at crew accommodations and visibility, displays and controls, equipment packaging, and emergency egress procedures," said Frank E. Jarlett, pre-design engineer who was in charge of its design and construction.

Assisting Jarlett with structural design of the mockup, which has a metal and wood frame covered with plywood, were Jean Malthaner, Tom Munn, and Joe Moore.

Fabrication was handled by the experimental department at Lindbergh Field under Nick Keough, Willard Martin, and Joe Turner.

Panke, Williams In Retirement

Walter R. Panke, Dept. 049-0, and Robert L. Williams, Dept. 015-0, both retired March 31 after a combined 86 years of service with General Dynamics.



R. L. Williams

Panke, a native of Canada, came to the U. S. and joined Consolidated in Buffalo, New York in April 1926.

The day before retirement, Lyman Josephs, Convair Aerospace-SD general manager, presented his 45-year service pin — 26 days early. Panke explained that he wasn't really jumping the gun, "If you add up all the overtime, I've probably put in 50 years."

Panke is planning a leisurely retirement — "lots of fishing, a little yard work, and a trip back home to Ontario."

Williams joined Tonawanda Products in Buffalo, a firm absorbed by Consolidated, in 1930 as a milling machine operator.

His entire career has been in the machine shop where he started at the bottom and subsequently has served as leadman, supervisor and at one time, superintendent.

During World War II, he recalled, "I was supervisor in the first department to hire women. It was a bit different at first, but once I adjusted, there were really no problems."

Looking forward to a well deserved retirement, Williams said, "I'm going to do everything you can't do when you're working. And that includes a lot of golf and travel." He plans to visit his daughter in Hawaii and son in Connecticut for starters.

GONE FISHIN' — After 45 years service Walter R. Panke, Dept. 049-0, has retired.

Buoy Systems Contract Seen As 'First Step' in Big Program

(Continued from Page 1)

gram to the large ocean areas where most of the world's weather originates," Bowers added.

The new buoys will be similar to the XERB-1 (Experimental Environmental Reporting Buoy) which has been operating off the east cost of Virginia to provide advance warning of Gulf stream-spawned hurricanes and blizzards.

Each of the buoys will weigh about 100 tons when ballasted on station and will carry more than 100 sensors. The sensors will measure and report ocean and atmospheric condition or change — surface and subsurface water temperatures down to 1,500 feet, salinity, sound velocity, current velocity, barometric pressure, wind speed and direction, surface currents, the height of waves, solar radiation, precipitation, humidity, etc.

The EEP units will be designed to operate for a year without maintenance. Their discus-shaped hulls will enable them to withstand hurricane conditions of 150-knot winds, 60-feet waves, and 10-knot currents.

The sensors, located on the hull, along the mast, and on the anchor line, will collect data every hour and store it in two memory banks — one a short-term 24-hour memory and the other a long-term memory which serves as a depository for all data amassed by the buoy during its year or more of unattended operation.

The short-term data collected will be telemetered once every six hours on command from the Coast Guard shore station in Miami, Fla. The shore station can issue a variety of commands, give priority to particular types of information, and call upon a number of different procedures contained in the buoy's electronic memory.

To insure light weight, accuracy, reliability, and low maintenance, the buoys' electronic systems will use solid-state circuitry. Power will be supplied by continuously operating diesel engines and alternating current generators.

All-steel welded hulls for the EEP ocean platforms, basically the same as those previously produced for the Coast Guard large navigational buoys, will be fabricated under Electro Dynamic-SD subcontract by a Gulf Coast shipbuilding firm. Oceanographic and meteorological sensors to be used will be provided as government-furnished equipment.

Roy V. Woodle, Electro Dynamic-SD program manager for national data buoy systems, will manage the EEP ocean platforms program with Ben Weinbaum as deputy program manager.

Elmer Gauthier will be responsible for design, manufacturing, and test of the buoys; Al Ender for systems engineering; Steve Esterline for program control; Lou Scott for data operations; Ken Jones for logistic support operations; and Jim Winters for reliability, maintainability, safety, and quality assurance.

Joe Harris is handling contracts; Mel Krueger, procurement and subcontracts; and Bill Stark, contract performance and budgets.

Best '70 Safety Records Recognized at Banquet

(Continued from Page 2)

its employes.

J. M. Adamson, director of operations, gave a progress report on the Performance Plus program and discussed its relationship to safety and to employes being more safety-conscious.

Josephs, in presenting the trophies, gave special recognition to the Convair Aerospace-SD employes at Vandenberg AFB for their "remarkable record" of seven years and more than seven million manhours without a lost-time accident.

Lynch said the fact that "safety is everybody's business" has been stressed among employes there and that "we've been very lucky and very fortunate to have that 'take' a little bit."

Lynch pointed out the importance of each individual realizing that safety is really his responsibility. "And if you get that message across, you can get a lot of other things across, too," he said.

Both Lynch and Glen Berg, safety engineer at Vandenberg, were commended by Wisdom for their efforts in helping to maintain a continuing emphasis on safety for the Convair Aerospace-SD employes at Vandenberg.

Wisdom said safety is "something that has to be thought about and practiced every day." He told the supervisors attending the banquet that, with their continued leadership, "we can expect to achieve even greater results in 1971 than we did in 1970."

General Dynamics Men on Space Congress Program

Three General Dynamics men will be among speakers at the eighth Space Congress to be held April 19 through 23 in Cocoa Beach, Fla.

Dr. George Mueller, senior vice president for the Corporation, will serve as chairman for a panel session on manned and unmanned space vehicles.

Robert A. Lynch of Convair Aerospace-SD will discuss "The Space Shuttle Booster" during an advanced space programs session. Carl F. Peters, also of Convair Aerospace-SD, will give a paper on "Centaur-Shuttle Integration and Operations" during a session on launch facilities.

A General Dynamics exhibit at the Space Congress will feature Space Shuttle, Orbit-to-Orbit Shuttle, and Research and Applications Module programs.

TRAP TERMINAL — Trap shooting ranges such as this at CRA gun range in El Cajon will be used for James K. Field Invitational shoot April 18. The event, honoring the founder of the range, will be open to all General Dynamics families.

Invitational Trap Shoot To Honor Range Founder

A James K. Field Invitational trap shoot for General Dynamics families has been scheduled at 10 a.m. Saturday (April 18) at the CRA gun range near Gillespie Field in El Cajon in honor of the range founder and in observance of a new four-year lease being negotiated with San Diego County for continued operation of the range.

Field, who headed Convair recreation and employe benefits programs for 24 years prior to 1968, made arrangements for lease of the 30-acre site and establishment of the gun range for General Dynamics employes in 1955.

Employes from the former Convair and Astronautics divisions donated hundreds of after-work and weekend hours to move dirt, install trap houses, refurbish a building for the range manager, and get the range ready for operation.

The site now incluudes trap, skeet, rifle, and pistol ranges, a clubhouse for use by CRA clubs and employe groups, and a CRA Sports Car Club garage.

Frank Kemper and Gunner Gatterman, commissioners of the CRA Gun Club, said the "Field Invitational" will be held on trap ranges 3 and 4 with each participant to have 25 targets at 16 yards and 25 targets at 19 or 22-yard handicap distances.

"Cost for this shoot only will be the original 50 cents per 25-bird price that was in effect when the range first opened," Kemper said. "There also will be a $1 range fee to cover cost of hams to be awarded as prizes. This means each participant will pay $2 for his fifty targets and toward the prizes."

Reservations for the event can be made by phoning Kemper's office, ext. 1158 KM.

George Schmiedel, supervisor of recreation for Convair Aerospace-SD, said the new lease for the gun range, located at 7806 Cuyamaca Road, runs through Feb. 28, 1975.

The range is open for trap and skeet shooting from noon to 5 p.m. Wednesdays through Fridays, from 6 to 10 p.m. Wednesdays for trap shooting, and from 9 a.m. to 5 p.m. Saturdays and Sundays for pistol, rifle, trap, and skeet shooting.

Cost for General Dynamics employes and family members is 75 cents per round (25 targets) for trap and skeet and 25 cents for day and 50 cents for night rifle and pistol shooting. Additional information can be obtained by calling Stan Hardgrove, the range manager, at 448-1825.

Pistol and rifle ranges at the site also are used regularly by the California Highway Patrol, La Mesa and El Cajon Polic Departments, the San Diego County Sheriff's Office, and classes at Grossmont College.

Tennis Pro to Give Bargain Lessons

Dave Bennett, tennis professional at Rancho Santa Fe and son of Ruth Bennett of Convair Aerospace-SD's Dept. 460-0, will conduct group and private lessons at reduced rates for interested employes and family members beginning next week on the CRA courts adjacent to Missile Park.

Sign-up will be at 10 a.m. Saturday (April 17) at the CRA courts. One-hour lessons for groups of four will be scheduled weekly for six weeks at $15. Private instruction will be $3.50 per half hour. Instruction will be scheduled Monday, Friday, and Saturday mornings.

Additional information can be obtained by calling Bob Herold, CRA tennis commissioner, at ext. 2658 LF.

You can buy U. S. Savings Bonds regularly for as little as 50 cents a week.

Father-Son Team Produces Sculpture

Dalton Suggs, senior design engineer in Convair Aerospace-SD Dept. 988-2, and his son, Donald, recently designed, helped fabricate, and installed a 20½ foot diameter mobile sculpture in a patio at UCLA's hospital.

The mobile sculpture is in the form of a stainless steel ring and is located adjacent to the hospital's emergency receiving and waiting room. A synchronous motor and a 2,592,000 to one gear reduction causes the ring to rotate once every 24 hours.

Donald Suggs, who is working towards a masters degree in arts at UCLA, conceived the idea for the moving ring "sculpture" and the proposal was selected as best of several in a contest.

The ring was rolled by Rohr Corp. in quarter segments and the drive mechanism was built in Suggs' home workshop. B. J. Simons assisted with some of the machining and Sal Costa with welding. It took the Suggs four days to assemble the structure at UCLA.

Schneider Fires 297 In Pistol Club Event

Red Schneider fired 297 out of a possible 300 in master class competition on the .22-caliber police course at CRA Pistol Club's March 26 match on the San Diego Police Department range. Jim Halfacre was second at 283.

Expert class leaders were Dick Sutton, 270, and Paul Pemberton, 265. Ferd Carranza was leader in the sharpshooter competition with 231 points.

Top shooters on the .45-caliber short national course were Jerry Lehrer at 260 and Schneider at 257.

CRA Calendar

(For information on CRA activities call CRA headquarters, ext. 1111 KM. Deadline for next issue of GD/NEWS is April 20. Call ext. 1071 LF or 3322 KM. All meetings are held in CRA Clubhouse unless otherwise noted.)

★ ★ ★

ADVENTURERS—Weekend car camp, April 24-25, at Playa Estrella, Mexico. Meeting 7:30 p.m., April 21.

BADMINTON—Play 7-10 p.m., Mondays, Federal Bldg., Balboa Park.

BALLROOM DANCING — Intermediate dance class starts Monday, April 19, 7:30-9 p.m.

BICYCLE CLUB — Call Bob Williams, ext. 1626 KM, for information.

BRIDGE — Duplicate bridge sessions, 7:30 p.m., each Friday.

CAMERA CLUB — Meet 7:30 p.m., April 18, Photo Arts Bldg., Balboa Park.

CERAMICS—Meet 9 a.m.-noon and 7-10 p.m., Tuesdays and Thursdays.

CHORUS — Rehearsals 7:30 p.m., Mondays.

COUNTRY & WESTERN MUSIC — Meet 7:30 p.m. each Thursday.

DELTA DIVERS — Meet 7:30 p.m. tonight (April 14).

FENCING—Workouts and instruction 7:30-10:30 p.m., Fridays. YWCA, 10th & C Sts.

FISHING CLUB—Potluck 6:30 p.m., meeting 7:30, April 20, Gillespie Field Clubhouse.

GARDEN CLUB—Spring Rose Show, April 25.

GUN CLUB—James K. Field Invitation trap shoot 10 a.m., April 18, Gillespie Field gun range.

HEALTH CLUB — Open 9:30 a.m.-10 p.m., Monday through Thursday; 9:30 a.m.-9 p.m. Fridays; 9 a.m.-noon, Saturdays; "women only" weekdays, 9:30-11 a.m.

ICE SKATING — GD family skate night 6:15-7:45 p.m. each Thursday, House of Ice, Interstate 8 and Lake Murray Blvd. Flat rate fee $1 (includes skates).

MINIATURE RAILROAD — Work sessions Saturdays and Sundays, CRA Missile Park.

MODEL HO RAILROAD — Work sessions 7 p.m., each Tuesday, CRA Missile Park.

ORGAN CLUB—Meet in home of Arch Ellsworth, 9349 St. Andrew Dr., Santee, at 7 p.m., April 20.

PISTOL CLUB — Shoot 9:15 a.m., April 25, S. D. police pistol range, Federal Blvd., & Home Ave.

RADIO CLUB—Meeting 7:30 p.m., April 15.

RIDING CLUB—Meeting 7:30 p.m. tonight (April 14).

RIFLE CLUB—Senior shoot 7 p.m., tonight (April 14). Junior shoot 9 a.m., April 17.

ROADRUNNERS — Meet 7:30 p.m., April 22, Gillespie Field Clubhouse.

ROCKHOUNDS—Meeting 7:30 p.m. tonight (April 14).

SAILING—Meeting 7:30 p.m., April 28.

SCULPTURE — Workshop sessions 7:30 p.m. each Monday.

SOFTBALL—Teams now forming. Managers meet 7 p.m., April 15 and 7:30 p.m. April 29. League play starts middle of May.

SPORTS CAR CLUB—Meeting 7:30 p.m., April 14.

SQUARE DANCE—Dance 8-10 p.m. each Thursday.

STAMP CLUB—Meeting 7:30 p.m., April 22.

SWIMMING — Family swim night 7-9 p.m., April 17, Mission Beach Plunge. Tickets at employe benefits, 5 cents.

TOASTMASTERS — Convair Toastmasters meet 4:30 p.m. each Wednesday. Dynamic Toastmasters meet 5:30 p.m. Thursday.

LEADING LADIES — Mrs. Henry Hudson, left, new president of Convair Wives Club, shows other newly elected officers engraved bowl she received as club's 1970 "woman of the year." Others, from left, are (seated) Mrs. Paul Brock, first vice president, and Mrs. Orville Lepper, second vice president, and (standing) Mrs. Floyd Reed, secretary, and Mrs. Frank Weismantel, treasurer. Installation of officers will be April 21 at a luncheon in the Kona Kai Club.

Adventurers Club Schedules Weekend Camp At San Felipe

CRA Adventurers Club has scheduled a weekend car camp outing April 24-25 at Playa Estrella, a primitive beach area 17 miles south of San Felipe.

Those making the trip are planning to leave San Diego about 2 a.m. and cross the border at Calexico-Mexicali, arriving in San Felipe about 8 a.m. Turn-offs to the camping area will be marked by Adventurers Club signs.

It is an ideal area for sea shell collecting and campers may hike out over a mile on the wet Gulf floor when the tide is out. There are no stores, sanitary facilities or drinking water at the camp site. For information call trip coordinators John Anderson, 277-5568, or John Smaldino, 279-2798.

* * *

"Climbing the Matterhorn," a slide presentation by Gordon Lee, PR director at San Diego State College, and his son, John, of their climb up the famous mountain will be seen at the 7:30 p.m., April 21 regular club meeting in the CRA Clubhouse.

Sharon Williams Wins Photography Honors

Sharon Williams won the coveted Ken Rinker Award for the best "people picture" slide, two other honors in the people picture category and an acceptance in traditional slide division in the San Diego Camera Club Association's annual Scott Watson Salon held last month.

Other members of the CRA Camera Club receiving commendations in the competition were Dorothy Mildice with three honorable mentions in the people picture division. Bob Pettyjohn took honors in contemporary slide division while Erich Wolf had an acceptance in the nature slide division. Clark Winsor had two acceptances in the black and white print division.

The shutter bugs next regular meeting is April 18 at 7:30 p.m. in the Photo Arts Building, Balboa Park. Program will include judging by club members of people picture assignments.

Intermediate Dance Class Will Start

A new intermediate ballroom dance class will start Monday, April 19, in the CRA Clubhouse auditorium. The 12-session course will be held 7:30-9 p.m. Mondays, with Bob McGlade as instructor. Cost of the series is $18 per couple.

The fox trot, waltz, swing, cha-cha, rhumba, samba and tango will be covered and students should have a degree of proficiency in the basic steps. For further information call Royce Riggan, ext. 2001 LF.

Softball Managers To Meet in April

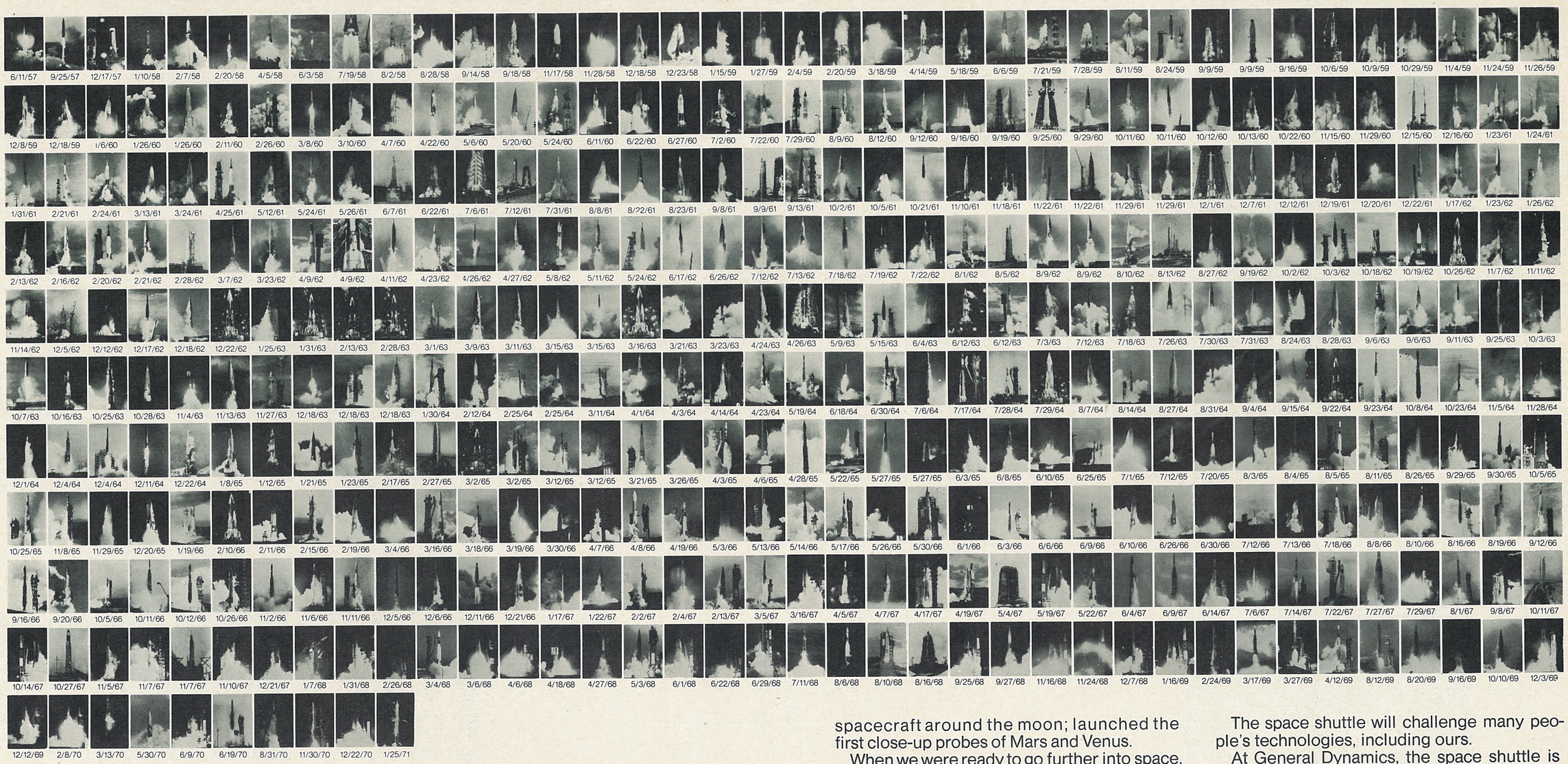
Two managers meetings for both fast and slow-pitch softball leagues have been scheduled this month. The first is at 7 p.m. tomorrow (April 15), and a wind-up meeting at 7:30 p.m., April 29.

Pete Beyrer of CRA said eligibility rules and playing schedules will be discussed at the kick-off meeting with team rosters due at the second. All managers are urged to attend both nights.

League play will get under way at CRA Missile Park the second week of May.

PRIZE PREVIEW—Mrs. Nancy Bradford, left, president, and Mrs. Lela Worley, treasurer, look over items prepared by CRA Ceramics Club members for raffle to be held in conjunction with ceramics show April 30 and May 1 in CRA Clubhouse. Included are Christmas tree finished by Mrs. Worley, lamp by Shirley Stauffer, stein by Barbara Findley, and tea set by Mary Horning. Tickets are now being sold by club members at 25 and 50 cents each.

After 390 launches, Atlas doesn't make the front page anymore.



When an Atlas now boosts its payload, it barely makes news. Mostly, it makes instant history.

Which is good in one way. And bad in another.

It's good because you expect Atlas boosters to deliver their payloads without benefit of network television. Because Atlas has demonstrated cost-efficiency. Because Atlas built a record of reliability. Over the past seven years, the latest versions of Atlas launch vehicles have compiled a successful flight record of 97%.

It's too bad, in another way, because you forget how much the Atlas rocket has shouldered to get us where we are in space.

For instance:

When the U.S. needed an ICBM, Atlas was it.

When NASA and the U.S. Air Force had 24 different missions in our space program, Atlas fulfilled them.

When we wanted to let people hear where we were in space, Atlas took the first recorded voice up there.

When we put the first American in orbit, Atlas did it. It also boosted America's first unmanned payload to the moon; sent the first orbiting spacecraft around the moon; launched the first close-up probes of Mars and Venus.

When we were ready to go further into space, Atlas was coupled with its second-stage mate, Centaur, the first hydrogen-fueled booster.

Closer to earth, Atlas-Centaur recently boosted the first of a new generation of communication satellites: INTELSAT IV.

In the 1970's, Atlas-Centaur has been selected to send probes on their way to Venus, Mercury, Mars and Jupiter.

The same team at General Dynamics' Convair Aerospace Division that built the Atlas and the Centaur, and has kept them up to date as prime launch vehicles, is now at work on another space project: the reusable space shuttle.

The space shuttle will challenge many people's technologies, including ours.

At General Dynamics, the space shuttle is typical of the kinds of projects that lead our people to develop new technologies.

Not only in aerospace, of course, but also in our other fields, such as shipbuilding, telephone systems, electronics and natural resources.

It's this kind of thinking that makes us the company that can do the jobs that have never been done before.

GENERAL DYNAMICS

SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

Vol. 24, No. 9 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, April 28, 1971

Centaur D-1 Order Totals $24 Million

Convair Aerospace-SD has been awarded a $24 million contract by NASA's Lewis Research Center for production of six new Centaur D-1 improved high-energy upper-stage launch vehicles and related insulation panels, nose fairings, and interstage adapters.

C. E. Wilson, Centaur D-1 program manager, said four of the new improved Centaurs will be used with uprated Atlas SLV-3D boosters in the AC-31, AC-32, AC-33, and AC-35 missions to launch Intelsat IV commercial communications satellites in the 1972-74 time period.

Another, also for use with an Atlas SLV-3D booster, is scheduled to launch a Mariner Venus-Mercury spacecraft in 1973 to investigate those planets and demonstrate the planetary-gravity-assist technique to be used in "grand tour" missions to the outer planets late in the 1970s.

The sixth Centaur D-1 covered under the contract will be used with an Atlas SLV-3D or Titan III booster for launch of the first Helios solar probe for the U.S. and West Germany governments in 1974.

The Helios spacecraft will explore interplanetary space near the outer solar corona to provide new understanding of solar processes and solar-terrestrial relationships.

Walt Hicks, Centaur D-1 test integration manager, said long-lead-time hardware items for the improved Centaur to be used in the AC-31 Intelsat IV launch are on order with final assembly of the launch vehicle scheduled to begin next December.

The first improved Centaur D-1, ordered previously, is currently undergoing initial stages of fabrication with major weld of

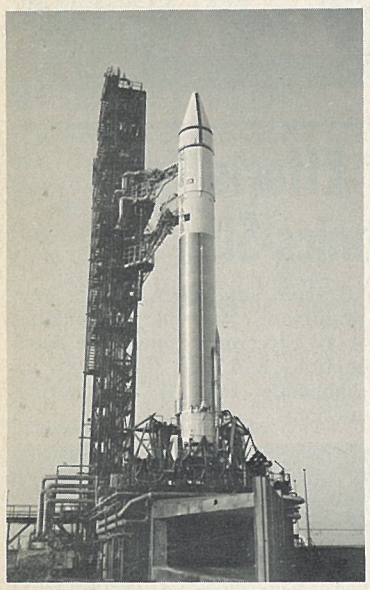
(Continued on Page 4)

Two Atlas-Centaurs Prepared For 1971 Mariner-Mars Launches

Convair Aerospace-SD's Atlas-Centaur 23 and 24 launch vehicles are undergoing checkout operations at Complexes 36A and B at the Eastern Test Range in preparation for next month's scheduled launches for NASA to send the twin Mariner VIII and IX spacecraft on six-month flights to the planet Mars.

The Mariner spacecraft will be the first ever to orbit another planet.

Atlas-Centaur 24 (Atlas SLV-3C 5405 and Centaur 22D), which is scheduled for launch first, underwent a flight readiness review at Complex 36A this month and was tentatively scheduled to have its Mariner VIII "payload" placed aboard yesterday.



LAUNCH 'TWIN' — Atlas-Centaur 23, one of "twin" Convair Aerospace Division launch vehicles to start Mariner spacecraft to Mars next month, is being prepared at Complex 36B at Eastern Test Range.

Atlas-Centaur 23 (Atlas SLV-3C 5404 and Centaur 21D) will launch Mariner IX about 10 days after the AC-24 flight. A launch support team from the Kearny Mesa plant will be at ETR several days to assist with pre-launch and launch activities.

The two 2,200-pound Mariner spacecraft of identical design are to arrive at Mars about 10 days apart in November and will be inserted by their 300-pound-thrust propulsion systems into different orbits around the planet to provide observations for a minimum of 90 days each.

Mariner VIII is to circle Mars about every 12 hours in an orbit ranging from about 1,000 to 10,600 miles above the planet and will map about 70 per cent of its surface and make measurements leading to understanding of the composition and thermal properties of its atmosphere and surface.

Mariner IX is to circle Mars about every 32.8 hours at 1,000 to 26,700 miles and will observe Mars' time-variable features, including its diurnal (day-night) and seasonal changes.

Both spacecraft also are to take measurements to give scientists a better understanding of the internal activity, mass distribution, and shape of the planet.

Jet Propulsion Laboratory has

(Continued on Page 4)

JOINS GD—New vice president, finance is Gordon E. MacDonald, veteran financial officer at Hughes Aircraft.

G. E. MacDonald Appointed New Vp For Finance

Gorden E. MacDonald has been appointed vice president, finance, of General Dynamics Corporation David S. Lewis, Chairman and Chief Executive officer, has announced.

MacDonald has served for some years as vice president and chief financial officer of Hughes Aircraft Company, Culver City, Calif.

"Gorden MacDonald brings to General Dynamics a wealth of experience in all phases of corporate finance acquired over many years in the service of a very fine and successful company," Lewis said, "and he will add great strength to our management team."

MacDonald is a member of the Financial Executives Institute, the National Association of Accountants and the American Institute of Banking, as well as many other professional societies. In addition to his financial background, he holds a law degree.

He will report to General Dynamics Headquarters in New York this month.

Math Competition Scheduled May 8

Advanced math teams from San Diego city, county, and independent schools will compete in the 14th annual mathematics contest to be sponsored by Convair Aerospace-SD on May 8 at UCSD.

Trophies, $535 in cash awards, pen sets, and certificates will be awarded to top contestants and teams at an awards banquet May 13 in the Hotel del Coronado.

UCSD is co-sponsoring the contest for the first time this year.

Convair Aerospace Top Mgt. Realigned

Major reorganization of Convair Aerospace Division's top management structure was announced recently by Frank W. Davis, president.

Mel C. Curtis, vice president and general manager of Fort Worth operation, is being transferred to San Diego as vice president and general manager of the San Diego operation.

Richard E. Adams, vice president-research and engineering for the San Diego operation since February, 1970, has been named vice president and general manager of the Fort Worth operation. He previously had served 19 years in various engineering and executive positions at Fort Worth.

The new setup also calls for division-wide sales, planning, and engineering programs.

J. T. Cosby, vice president-111 programs, will head the sales department; R. H. Widmer, vice president-research and engineering, will head the consolidated engineering departments in San Diego and Fort Worth; and Lyman C. Josephs, vice president and general manager of the San Diego operation since September, will serve as vice president and head of the new combined planning department.

Also now reporting directly to Davis at division level are N.B. Robbins, F-111 programs; M. V. Wisdom, industrial relations; and Dr. D. A. Dooley, space shuttle.

H. C. Jones, contract and pricing; J. D. Milling, controller; and E. E. Hatchett, management and operations, continue in their positions on the division staff.

"The main idea of the reorganization is to concentrate the resources and talents of our San Diego and Fort Worth operations to get necessary new business," Davis said.

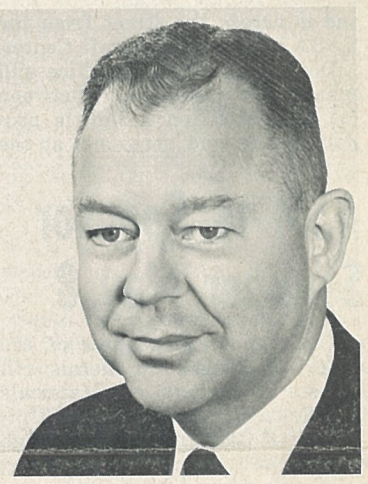
He lauded the F-111's record and said "more and new versions of the F-111 are candidates for fulfilling the changing role of aircraft."

Davis said both the Air Force and Navy seem to be lined up for program commitments for the next several years.

He added, however, that almost constant changes in requirements, technology, priorities, and people should open new doors for aircraft business.

"Every time changes occur," he said, "the door is open to new ideas, a new approach, or a new product. To encourage sensible change, and to be ready to take advantage of change, is the challenge we face in the aircraft segment of our business."

Davis praised the efforts of both Fort Worth and San Diego operations in winning important



FRANK DAVIS

study contracts from the National Aeronautics and Space Administration this month.

Fort Worth won contracts to study advanced transonic aircraft and to carry out wind tunnel tests on an aircraft of this type. "We must speed up our change to capture more such programs," he said.

Both the San Diego and Fort

(Continued on Page 2)

M. C. CURTIS

Curtis Returns To San Diego

Mel C. Curtis, newly appointed vice president and general manager of Convair Aerospace Division's San Diego operation, has served as vice president and general manager at Fort Worth since September, 1970, and previously served two years as vice president of operations.

He was vice president of operations for Canadair Ltd. in Montreal from 1965 to 1967 and later also served at Fort Worth as vice president in charge of a special task force to insure that early operational F-111 aircraft were combat-ready.

Curtis originally joined Con-

(Continued on Page 2)

R. E. ADAMS

Adams Veteran Eng. Executive

Richard E. Adams, veteran engineering executive, has re-joined Fort Worth operation as vice president and general manager.

He replaces M. C. Curtis, who is taking over as vice president and general manager of Convair's San Diego operation.

Adams originally joined Fort Worth operation in 1951 as an assistant project engineer. He successively served as project engineer, chief of preliminary design, chief of advanced design, and director of advanced programs. During this period he worked on every major new aircraft proposal submitted by Fort

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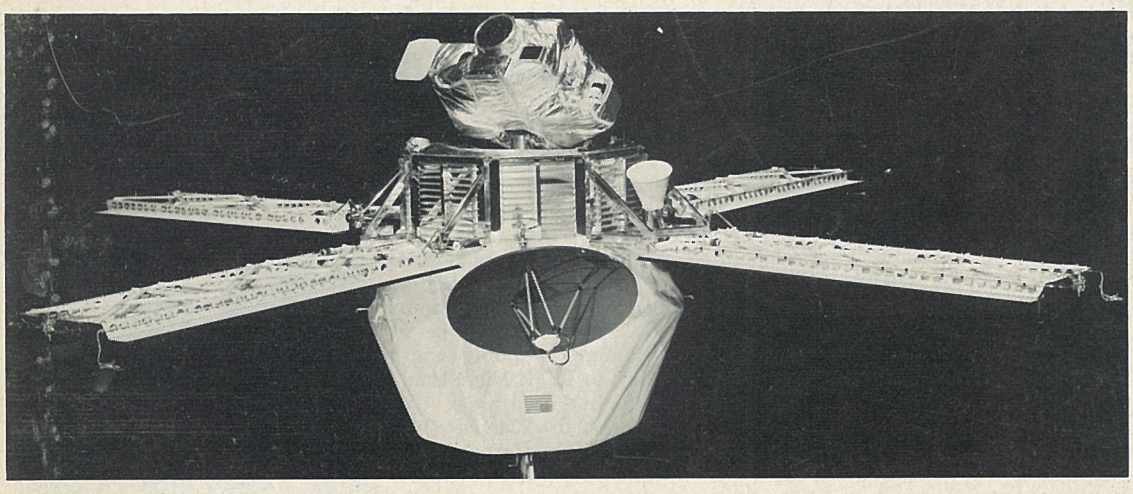

MARS FLIER — Two identical Mariner spacecraft, fabricated by Jet Propulsion Laboratory, will be launched by Atlas-Centaur 23 and 24 next month for six-month flights to Mars. Both will be placed in orbit around the "red planet" and will collect and return scientific data for three months.


J. T. Cosby


E. E. Hatchett


H. C. Jones


L. C. Josephs


J. D. Milling


R. H. Widmer


M. V. Wisdom

Space Shuttle Office Established at Houston

Dr. Donald Dooley, Convair Aerospace Division Space Shuttle program manager, has announced establishment of a new shuttle office in Houston, Texas.


D. J. Jones

David J. Jones, who has been directing Space Shuttle program development and was responsible for Phase C/D proposal planning, has been transferred from San Diego to direct the Houston Office and continues reporting directly to Dooley.

The new office is located with the General Dynamics field office at 1730 NASA Blvd., Suite 204, and is across the street from the NASA Manned Spacecraft Center.

Dooley said the new office will enhance communication between the division's Space Shuttle program office and personnel at the Manned Spacecraft Center and will represent the Convair Aerospace booster team on management and technical matters.

Jones has been with Convair Aerospace-SD and its predecessor firms since 1959 and has served with the Space Shuttle organization since it was formed in 1969.

He formerly served from 1966 to 1969 as advanced program manager of manned space systems. This entailed management and technical direction of diversified projects ranging from technology work in human factors, thermodynamics, aeroballistics, dynamics, and flight mechanics to project direction of major systems. Included was responsibility for the division's efforts on the basic subsystem module, the space station proposal, and the NASA experiments module study.

Jones previously had served from 1963 to 1965 as manager of the space systems booster definition program for the Air Force Space Systems Division with responsibility for all technical work including design, systems, integration, reliability, and program development for booster and payload capabilities.

During the Navy VFX aircraft competition, Jones was manager of VFX technical sciences and directed activities of technical groups including aerodynamics, thermodynamics, dynamics, structures, wind tunnel test, human factors, and materials. In 1959, he was responsible for the technical analysis portion of the recoverable booster study for Wright-Patterson AFB.

Before joining Convair, Jones was with Ryan Aeronautical Co. from 1956 to 1959 as project aerodynamicist for the X-13 verti-jet aircraft and various missile and drone programs.

Jones received his aeronautical engineering degree from the University of Colorado in 1956. He completed the executive program of Stanford University's graduate school of business in 1967.

ASM to Sponsor Seminar May 8

The San Diego chapter of the American Society for Metals will sponsor a seminar on "Materials and Ecology" May 8 on the University of California at San Diego campus.

Dr. N. Ray Adsit, a Convair Aerospace-SD senior engineering metallurgist and seminar chairman, said presentations will relate to use of engineering materials and practice in the solution of ecological and environmental problems such as air, water, and noise pollution; resource conservation and management; scrap metal reclamation; and radioactive waste disposal.

Speakers will include representatives from Gulf Electronic Systems Division, the U.S. Bureau of Mines, Allied Gulf Nuclear Services, Solar Division of International Harvester Co., and Rohr Corp.

Michael S. Hersh, also a Convair Aerospace-SD senior engineering metallurgist, is chairman of the sponsoring ASM chapter.

Registration will be $5. The seminar will begin at 9 a.m. and will be held in Room 2100 of the UCSD medical school's basic science building. Reservations can be made by phoning Adsit at ext. 3737 KM.

Adams Veteran Eng. Executive

(Continued from Page 1)

Worth.

Adams has been serving as vice president-research and engineering in San Diego since February 1970.

He previously worked for Lockheed Aircraft Company at Burbank, Calif., the flight-test division of NASA's Langley, Va. Laboratory, and the NEAP Division of Faircraft Engine and Airplane Corporation.

Adams graduated from Purdue University in 1942 with a BS degree in mechanical engineering.

He is a member of the Technical Advisory Board of the Southern Methodist University Foundation for Science and Engineering, and previously served on the Fort Worth Chamber of Commerce education committee.

Metal Class Takes Tour

Eighteen members of an evening graduate class in metal working at San Diego State College were guests of Convair Aerospace-SD recently for a series of manufacturing development briefings and tour of the Kearny Mesa factory.

C. E. Roye, supervisor of manufacturing development, spoke to the group on division product lines and opportunities in industry.

L. D. Green gave a briefing on adaptive controls, Don Krantz on explosive and hydraulic forming, Earl Christian on air bearings, George Baxter on the Sheridan Gray stretch press, Mike Bock and C. L. DeArmey on laser alignment and cutting use, and Robert Bauman on pulsed tungsten inert gas and electron-beam welding.

Members of the class took time out to ride an air bearing scooter in the life science area during their tour.

Annual Spring Dance Scheduled By Convair Mgt. Club at 'Del'

More than 500 Convair Management Association members and wives or guests are expected to attend the association's annual spring dance Saturday, May 8, in the Coronado ballroom of the Hotel del Coronado.

Orchid corsages, grown and prepared by members of the CRA Garden Club, will be presented to each of the ladies attending. Each of the 75 buffet tables will carry the name of a service provided by the industrial relations department for employes and their families.

Hosting the event will be Lyman Josephs, Convair Aerospace Division vice president for long-range planning, and Milt Wisdom, director of industrial relations, and their wives.

A no-host social hour is scheduled at 6:30 p.m. and a buffet dinner will be served from 7:30 to 9 p.m. consisting of beef, ham, cole slaw, potato salad, baked beans, and jello.

Dancing to the music of the Chrit Connie band and vocalist is scheduled from 9 p.m. to 1 a.m.

Tickets are $3 per person or $6 per couple and are available through association boosters. Advance table reservations may be made by phoning Gary Phelps, ext. 2668 LF. Dress will be semi-formal.

Planning committee for the dinner dance includes Del Dimmitt, Dick Schulz, Bruce Bolen, Earl Bailor, Lou Braun, and Phelps.

The association's traditional monthly raffle to raise funds for college scholarships for children of Convair Aerospace-SD employes also will be held.

SUPER SALES — Getting an early start and a little practice, industrial relations volunteer hostesses persuade Russ Davis, Dept. 002, to purchase scholarship drawing tickets for Convair Management Association's dinner-dance, May 8. Hostesses, from left, are: Roberta Alex, Jane Matthews, Diana Moore, Jennie Barlow, Tricia Gramling, and Karen Rose.

Convair Aerospace Top Mgt. Realigned

(Continued from Page 1)

Worth operations are involved in the division's space shuttle effort which Davis called "an extremely challenging technical and manufacturing undertaking."

Davis also praised the San Diego operation for winning the contract to design the Research and Applications Module (RAM), one of the payloads slated to be used with the space shuttle.

RAMs are a family of modules designed to accommodate various space experiments and experimenters while they are in orbit.

The division president also noted that the Atlas, built by Convair Aerospace-SD, won the "hard-nosed commercial job of launching the Intelsat IV communication satellites."

The first Intelsat IV, placed in orbit by Atlas-Centaur 25, now is on station over the Atlantic. It can carry 9,000 communications channels or 12 color TV channels.

"When numerous satellites of this kind are working, it may well revolutionize the communications system, the education systems, and travel patterns," Davis said.

"The opportunity for advancing the cause of peace and justice and happiness in the world through improved communications will be almost unlimited if we use them with honesty and goodwill," he said.

Curtis Returns To San Diego

(Continued from Page 1)

vair in San Diego in 1951 as an engineer and worked on the Convair 340, F-102, F-106, 880 and 990 aircraft programs.

He became chief of engineering administration at Convair in 1961 and was director of engineering in 1963 when he was transferred to General Dynamics Corporate Headquarters in New York as director of program analysis and evaluation. The assignment as a vice president at Canadair followed.

A native of Iowa, Curtis attended Columbus Junior College in Washington, D.C., and San Diego State College and received his bachelor of science in physics and doctor of optometry degrees in 1951 from Northwestern Illinois College in Chicago. Optics, particularly as related to aerospace applications, was his specialty throughout college.

Curtis served as a Marine Corps aviator in the South Pacific during World War II and, after being recalled in 1952 for 17 months active duty, also served as a helicopter pilot in Korea and Japan.


N. B. Robbins


D. A. Dooley

Prim to Head Sales Efforts For ED Division's Electronics-SD

D. C. Prim, former vice president-research and engineering and acting marketing director, has been appointed vice president-sales for Electro Dynamic Division's Electronics operation in San Diego by W. E. Bratton, vice president and general manager.

"The importance of new business bookings to the future of this division dictates that even greater emphasis must be placed on the sales function," Bratton said.

Engineering functions previously reporting to Prim now are headed by R. F. Reese, director of engineering, who also now reports directly to Bratton.

Bratton said Prim, in his new assignment, will be responsible for all Electronics operation sales functions and that Reese will be responsible for all engineering functions.


D. C. Prim


R. F. Reese

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Janusz and Peterson Appointed To Plant Engineering, Quality Posts

Appointment of two men from other firms to managerial positions at Electro Dynamic Division's Electronics operation in San Diego have been announced.

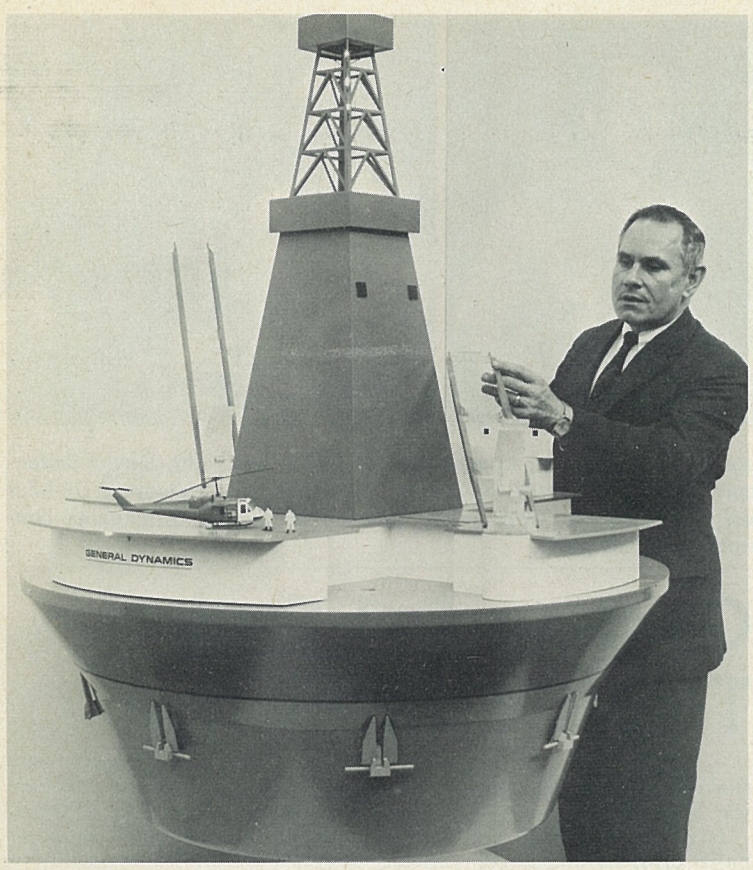
N. V. Janusz has been appointed manager of plant engineering, reporting to Frank Hickey, manager of administration. Norman H. Peterson, has been appointed manager of quality control, reporting to R. H. Nicholson, director of quality assurance.

Janusz comes to Electro Dynamic-SD from Rohr Corp. where he was chief of facilities planning. He was with Convair-SD from 1960 to 1965 as a senior plant engineer.

Peterson joins Electro Dynamic-SD from Solar Division of International Harvester Co. where he was manager of quality control.


N. V. Janusz


N. H. Peterson



ON DISPLAY — John Helm, Electric Boat manager of underseas systems and resources, explains model of Arctic Offshore Drilling System for Technology Conference at Houston.

Oil Drilling System Designed For Arctic

A model of an ice-breaking offshore drilling system which could extend the Arctic oil drilling season by six months was unveiled by General Dynamics at the Offshore Technology Conference in Houston, Texas.

The system, developed by Electric Boat Division, is based on a cone-shaped hull which would be "squeezed" upwards by ice pressure until the hull's weight breaks the ice.

John Helm, manager of underseas systems and resources, said that "the design is based on work done several years ago when there was interest in placing a scientific station in the Arctic ice pack and a similar vessel was designed for this purpose."

The 10,900-ton drilling vessel could permit offshore work during most of the months when ice action would normally force removal of drilling vessels or platforms. It could survive the Arctic winter in the ice pack without haul-out during the nonactive period.

"Depending upon location," Helm said, "it might even remain operational all winter in one drilling area."

Helm pointed out that a single icebreaker could position, anchor and service several drilling vessels. Each would be moored by eight, 30,000-pound anchors with 3½-inch chains leading through hawsepipes below the hull's exposed icebreaking surfaces.

Helm said the General Dynamics system was designed to meet three basic requirements: operate reliably in full appreciation of the Arctic offshore environment; incorporate best safety features, blow-out prevention and pollution controls; and have the capability of "letting go" and repositioning in minimum time.

"As a result, the system would have a re-entry capability, with the well-heads located below the ocean bottom, clear of danger from grounding ice."

The drilling vessel would be 150 feet in diameter and have a 41-foot draft. It would accommodate a crew of 40. The system is designed to operate in conditions similar to those in Canada's Mackenzie River Basin — water depths from 60 to 600 feet and fast ice accumulations to five feet.

A model of a proposed 900-foot submarine tanker was also displayed at the General Dynamics exhibit. The tanker has been offered to five major oil companies and is presently being evaluated as an economically competitive and environmentally attractive method for transporting Arctic oil.

Team Plans Check Of Health Problems

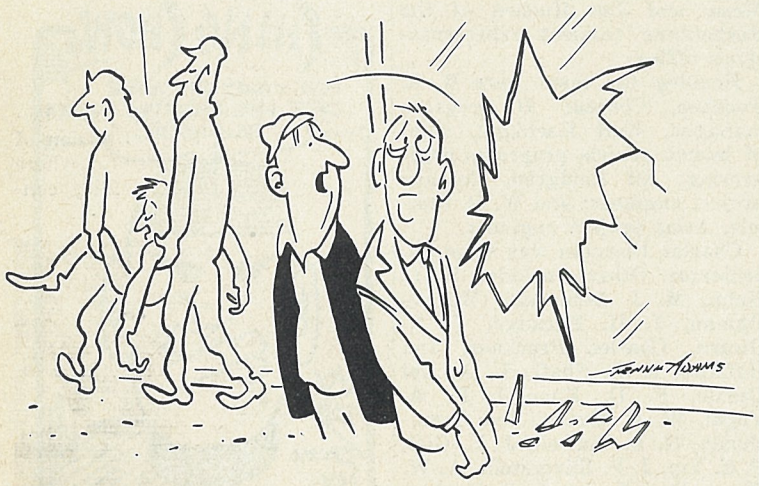
A team of four from the General Dynamics Bioenvironmental Health Control Center at Fort Worth will leave Friday for a three-week survey of several East Coast facilities.

The four are J. S. McKarns, J. D. Eastes, R. W. Miller and H. W. Bryant.

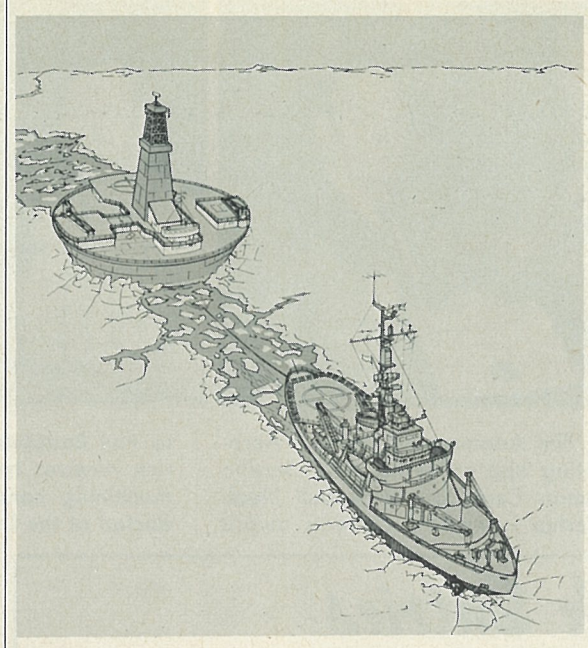
The survey will consist of a check of potential in-plant environmental health and safety problems and an outside check for possible air and water pollution problems.

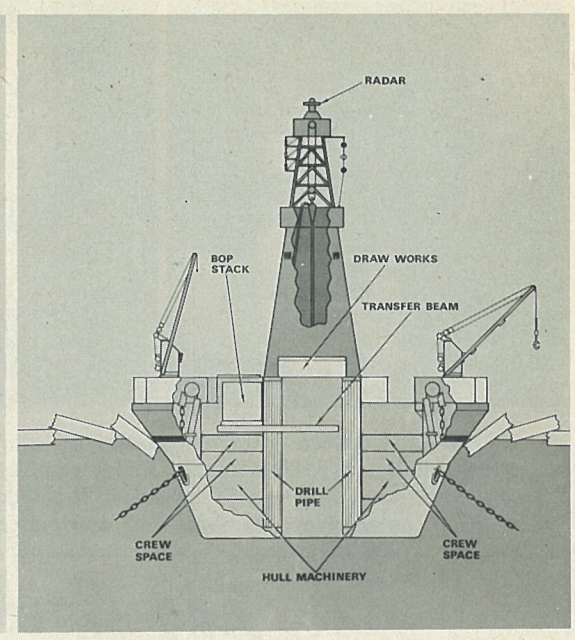
The team, experts in industrial hygiene and health physics, will visit the Stromberg-Carlson plant, Charlottesville, Va.; Electro Dynamic, Avenel, N. J.; Electric Boat, Groton, Conn.; Quincy Shipbuilding, Quincy, Mass.; Stromberg-Carlson, Rochester, N.Y.

Frank L. Paschal Jr., administrator of the center, said the team will return to Fort Worth to plan the summer portion of survey.



"He was just demonstrating how he lived only a hop, skip and a jump from the job . . ."





WINTRY WORK — Arctic Offshore Drilling System is demonstrated in these sketches. Unique drilling platform developed by Electric Boat could be towed to station by single icebreaker. Eight 30,000-pound anchors stabilize hull.

Convair Aerospace Awarded NASA Contract For Prelim. RAM Design

The National Aeronautics and Space Administration has selected General Dynamics, Convair Aerospace Division, San Diego, for award of a contract for definition and preliminary design of a Research and Application Module (RAM). Three firms had submitted proposals for this work.

Estimated value of the one year, fixed-price contract is $2 million. Convair Aerospace will conduct preliminary design studies, operational analyses, program planning, and develop mockups of critical portions of the RAM for engineering assessment.

The flexible RAM concept could provide versatile and economical laboratory facilities for research and applications in a number of areas by potential users such as government agencies, universities, industrial and commercial interests.

Early RAMS could operate while attached to the space shuttle and contribute to the development of a low cost space experimentation system. While NASA has not made a commitment to develop the RAM, data derived from this study will have immediate benefit in support of the definition of the space shuttle.

The contract will be under the technical direction of the NASA Marshall Space Flight Center, Huntsville, Alabama.

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W. W. Withee, Research and Applications Module (RAM) program director, made the following statement:

"All of us at the Convair Aerospace Division are very pleased that we have been awarded the single definition study for the Research and Applications Module (RAM) by the National Aeronautics and Space Administration (NASA).

"The RAM is envisioned as an economical and highly versatile earth-orbiting laboratory for conducting a variety of experiments with either the reusable space shuttle or a space station.

"Before winning this design study, Convair Aerospace recently completed a RAM concepts study for NASA, the preliminary step before the design work on which we will now be engaged.

"We are teamed with three other companies for this study; North American Rockwell Space Division, TRW Systems, and Bendix. Convair Aerospace, as team leader, will be responsible for system integration, RAM configuration definition, scientific payload requirements definition, and integration of all experiments.

"All of Convair Aerospace activities in this space program will be conducted by a compact engineering team at our Kearny Mesa facilities in San Diego.

"Also, we at Convair Aerospace have proposed to NASA the inclusion of five European team members to define RAM, who have worked together on space programs as a consortium called MESH, made up of MATRA of France, ERNO of Germany, SAAB of Sweden, Hawker-Siddeley of the United Kingdom and Fiat of Italy.

"The teaming arrangement with these European countries offers an opportunity for an international outlook and an exchange of ideas and requirements for broadened participation in the program.

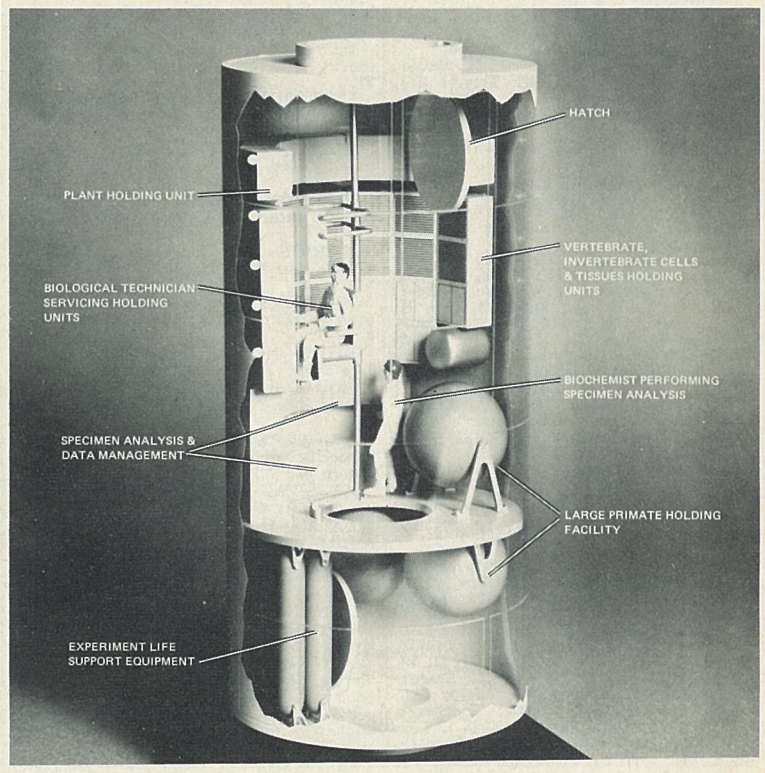
"The U. S. - European cooperative effort would occur in such areas as specific subsystems and experiment integration.

"As you know, NASA is currently studying the use of a reusable space shuttle for low-cost transportation to orbit and return to Earth and the space station as a semi-permanent facility which would have general and special purpose laboratories.

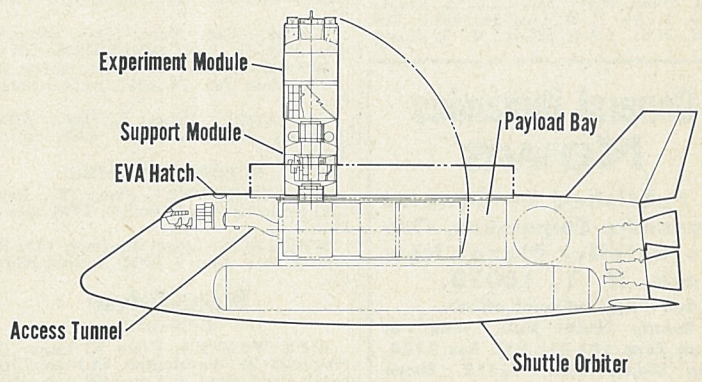
"For the purpose of this preliminary definition study we are undertaking, the first RAM would be launched in 1978 using the shuttle and operate in conjunction with a modular space station which would have an orbital lifetime of 10 years or more, or alternatively operate in a shuttle sortie mode, where the RAM would remain attached to the shuttle in orbit, conducting experiments up to 30 days, and then return to Earth with the shuttle.

"The maximum size of the RAM module we will design will depend on the final decision on the shuttle's cargo capacity but should be approximately 14 feet in diameter and up to 58 feet long, with a weight of 20,000 pounds.

"This current contract — which is a Phase B definition study — is valued at $2 million and covers a period of one year."



LABORATORY — Manned space laboratories which can be used with reusable space shuttle or with multi-manned space station will be subject of definition study under NASA contract.



VERSATILE — In space shuttle mission, manned space lab is carried in payload bay until shuttle orbiter is in required orbit, then extended to perform mission.




APPRENTICE LAURELS — In two photos at left, Jim Adamson of Convair Aerospace congratulates William Marks Jr. on completing apprenticeship and Gordon Prentice of Electro Dynamic-SD presents Journeyman Certificate to Kermit Neal. Photo right center: Fred De Greef of apprenticeship committee presents award to Phil Radabaugh as "outstanding apprentice" of 1970. Far right, David Seltenrich receives trophy from Jack Croft of Convair Aerospace for victory in six-hour machining contest. Presentations were made this month during ceremonies conducted at the Lindbergh Field plant.

Log Book Entries

Service Emblems

CONVAIR

Service emblems due between April 16 and April 30.

Thirty-Five-Year: Dept. 019, J. R. Benedict; 587, C. A. Gerber.

Thirty-Year: Dept. 001, J. B. Bence; 015, R. E. Brown; 027, E. L. Brown, C. S. Rosefeld; 045, J. R. Valdez; 143, R. F. Fowle; 512, H. N. Sylvester; 820, W. S. Tucker.

Twenty-Five-Year: Dept. 400, Jeanne E. Anderson, E. E. McKenzie; 834, Sarah B. Huggins; 986, R. C. Rice.

Twenty-Year: Dept. 002, A. F. Nobrega; 130, D. L. Spencer; 149, J. E. Campanella; 205, L. L. Sowles; 223, R. M. Parrish, Bernice P. Romero; 400, H. M. Ross; 588, E. I. Seiden; 759, G. S. Ford; 761, M. L. Cornish; 810, R. L. Davis.

Fifteen-Year: Dept. 015, C. T. Johnson; 130, E. L. Barrett, Mary G. Meservy; 131, F. L. Aya, D. Davis Jr., R. M. Linville; 142, E. J. Franc; 143, M. M. Henry, J. N. Pinkerton; 144, J. R. McCarty; 149, C. L. Parker; 150, Ora S. Williams; 193, Marguerite B. Weaver; 197, Ethel J. Stanley; 204, P. P. Shepard; 221, D. V. Haynes; 224, Juanita M. Baker; 228, Ruth E. O'Neil; 250, K. O. Chestnut; 400, G. J. Bourke Jr.; 401, S. M. Martinez; 518, G. C. Gonzales, K. H. Hiler; 524, Norma R. Linton; 566, R. L. Hendrix; 574, J. B. Whitfield; 585, Everett H. Price Jr.; 759, R. F. Junghans; 810, J. P. Gamache Jr.; 832, J. S. Miranda; 840, Sylvia E. Gore; 842, Charlene M. Chadwell; 860, R. F. Fox; 979, W. J. Bayless, Grace M. Young; 987, W. S. Hicks; 988, J. R. Cannau.

Ten-Year: Dept. 019, P. J. Kuntz; 046, J. F. Batchelder, Carolina G. Romero; 101, Jane L. Chance; 140, H. R. Lawson; 170, C. H. Myrose; 195, F. W. Muir; 507, M. J. Ray; 761, R. S. Hopgood; 979, C. F. Brock.

ELECTRO DYNAMIC

Service emblems due during the month of April.

Twenty-Year: Dept. 102, Gloria L. Cooper; 423, Margaret S. Hunt, Valeria A. Martineau; 616, J. L. Hall; 638, W. S. Williamson; 711, J. P. Moore.

Fifteen-Year: Dept. 106, V. M. Sardo; 427, B. E. Bates, R. M. Trent; 566, T. E. Munson; 582, G. A. Blade Jr.; 614, D. J. Frye, A. J. Johnson, D. K. Smith.

Ten-Year: Dept. 205, F. L. Edwards.

Awards

CONVAIR

Employe Suggestion Awards for week ending April 9:

A. L. Bishop Jr., Dept. 401-5. $25; W. T. Black, 985-4, $15; R. M. Braeutigam Jr., 027-0, $15; V. D. Brose, 598-1, $34.30; D. K. Brown, 046-0, $68.40; H. W. Buckner, 590-0, $15; M. D. Chambers, 565-3, $15; L. J. Chew, 512-3, $134.10; W. L. Colahan, 141-4, $58.40; C. J. Collins, 250-1, $15; G. D. Davis, 027-0, $17.40; A. M. Easton, 761-0, $15; J. W. Eckert, 761-0, $7.50; P. S. Gastauer, 001-0, $7.50; F. N. Gingrich, 780-1, $19.35; W. C. Hoofard, 761-0, $15 (two awards); R. V. Lee, 759-0, $15; D. R. Mabery, 142-1, $15; G. D. Maxwell, 149-7, $25; W. G. McClure, 516-0, $15; W. A. McGrew, 407-0, $42.10; R. G. McKellips, 780-4, $15; R. J. Melton, 046-0, $16.90; R. V. Minutello, 575-5, L. M. Moore, 511-4, $90 (six awards).

Also J. W. Mowatt, 820-0, $109.90; L. Peralta, 027-0, $29.60; K. Phillips, 001-0, $7.50; P. A. Piraino, 019-0, $15; L. W. Poff, 250-3, $18.20; R. E. Reynolds, 842-0, $1,083.30; C. E. Roach Jr., 761-0, $30 (four awards); J. M. Seidler, 149-7, $15; T. R. Shattuck, 754-0, $33.50; D. W. Smith, 578-1, $1,034.50; P. J. Stacey, 565-1, $226; J. R. Stearns, 046-0, $35; D. W. Stein, 962-3, $15.10; E. Sweet, 780-1, $19.35; C. H. Towner, 985-1, $15; R. G. Triplett, 524-5, $15; S. W. Trotter, 046-0, $15; H. R. Urbach, 572-2, $15; M. R. Vigil, 019-0, $15; M. L. White, 590-0, $100.80; K. D. Whitehead, 584-0, $15; L. Peralta, 027-0, $31.20; M. J. Saunders, 524-5, $15; J. F. Weddle, 761-0, $7.50.

Employe Suggestion awards approved for week ending April 16:

H. B. Bishop, Dept. 401-5, $46.20; N. J. Callas, 579-2, $118.30; J. J. Campbell, 744-0, $71.20 (two awards); C. J. Collins, 250-1, $22.25; R. E. Culver, 143-1, $15; R. J. Dunn, 545-3, $89.20; J. L. Eiland, 149-0, $21.70; B. F. Frey Jr., 002-0, $15; T. G. Hall, 148-4, $67.10; J. A. Jones, 979-1, $30 (two awards); T. Jones, 031-0, $118.30; M. M. Kanemoto, 986-3, $7.50; C. J. Lewis, 250-1, $22.25; L. M. Moore, 511-4, $15; O. H. Moore, 578-5, $15; I. P. Mouet, 046-0, $15; T. Nishida, 962-3, $15; L. Ortiz, 143-3, $15; F. J. Phillips, 572-3, $86.60; B. N. Reynolds, 146-3, $15; L. D. Rush, 046-0, $42.70 (two awards); W. E. Rutkowski, 142-1, $15; G. D. Sanders, 802-0, $7.50; J. J. Smith, 511-4, $15; H. F. Towne, 250-2, $119.10; A. Van Norman, 587-0, $25; C. E. Vickers, 985-3, $196.40; T. L. Woodin, 491-1, $45 (three awards).

"Cost Reducers"

CONVAIR

Twenty-award pin—L. M. Moore, Dept. 511-4.

Fifteen-award pins—M. H. Thrasher, Dept. 001-0; L. M. Moore, 511-4.

Ten-award pins—E. L. Wright, Dept. 202-0; L. M. Moore, 511-4; A. R. Hermann, 820-0; R. J. Ratliff, 016-0.

Five-award pins—H. W. Sass, Dept. 820-0; C. L. Parker, 149-8, V. D. Brose, 985-1; C. E. Roach Jr., 761-0; G. C. Archbold, 015-0; R. A. Droll, 170-1.

Retirements

CONVAIR

AVRITT—Lester G., Dept. 130-1. Seniority date April 22, 1951, retired March 31.

BAUER—Edward J., Dept. 250-1. Seniority date July 31, 1958, retired March 12.

BAUMGARTEN — Harold G., Dept., 027-0. Seniority date March 30, 1941, retired March 26.

BEALE—Frank L., Dept. 533-1. Seniority date Jan. 6, 1941, retired March 31.

BRAITHWAITE — Claron A., Dept. 001-0. Seniority date Dec. 1, 1952, retired March 31.

CAVENDER — Euel, Dept. 250-2. Seniority date Jan. 27, 1959, retired March 19.

CLENDENON — Jack O., Dept. 131-7. Seniority date Nov. 1, 1965, retired March 31.

COX—Lester E., Dept. 780-1. Seniority date Feb. 9, 1956, retired March 31.

DAVIS—Morris J., Dept. 015-0. Seniority date Dec. 3, 1945, retired March 31.

FRITZOHN — Stuart, Dept. 731-0. Seniority date Aug. 26, 1957, retired March 26.

FULLER—Anna H., Dept. 524-2. Seniority date April 1, 1957, retired March 31.

GILLMORE—Leon D., Dept. 731-0. Seniority date Oct. 7, 1946, retired March 31.

HARRIS—Paul E., Dept. 400-8. Seniority date Dec. 11, 1947, retired March 31.

HAXBY—Harold G., Dept. 148-2. Seniority date April 14, 1952, retired March 31.

HOLT—Charles, Dept. 250-6. Seniority date Aug. 18, 1966, retired March 23.

HOOVER—John C., Dept. 512-0. Seniority date Nov. 12, 1935, retired March 31.

KENNAMER—Jordan W., Dept. 001-0. Seniority date Nov. 11, 1965, retired March 31.

KECSKES—Steve, Dept. 046-0. Seniority date April 6, 1936, retired March 19.

LAIRD—Harold L., Dept. 149-0. Seniority date April 17, 1941, retired March 31.

LUND—Walter, Dept. 515-0. Seniority date July 31, 1968, retired March 19.

PANKE—Walter R., Dept. 049-0. Seniority date April 26, 1926, retired March 31.

PAWKA—Edward J., Dept. 110-3. Seniority date June 8, 1964, retired Feb. 12.

PHILLIPS—Beatrice G., Dept. 229-1. Seniority date Oct. 20, 1950, retired March 5.

REIS—Serafine, Dept. 250-5. Seniority date Aug. 31, 1959, retired March 31.

SAEVA—Mary T., Dept. 780-6. Seniority date Aug. 22, 1950, retired March 5.

SPINNING — Erwin H., Dept. 101-7. Seniority date Nov. 25, 1941, retired March 22.

STARR—Millard O., Dept. 562-0. Seniority date Sept. 5, 1951, retired March 31.

TUTTLE—Charles R., Dept. 597-0. Seniority date Jan. 30, 1950, retired March 26.

WEISS — Sam, Dept. 578-5. Seniority date July 27, 1944, retired March 12.

WHITE—Sanford P., Dept. 401-5. Seniority date Feb. 14, 1967, retired March 24.

WILLIAMS — Robert L., Dept. 015-0. Seniority date March 17, 1930, retired March 31.

ELECTRO DYNAMIC

DANENHOWER — James H., Dept. 102, Seniority date March 3, 1958, retired March 8.

WHITLOCK—Lloyd O., Dept. 422. Seniority date Aug. 9, 1962, retired March 31.

Rider-Driver

CONVAIR

RIDE WANTED—From El Cajon (S. Magnolia & Washington St.) to Lindbergh Field plant, 7 a.m.-3:30 p.m. shift. Call J. O. Berry, ext. 1468 LF or (home) 447-5221.

RIDE WANTED—From El Cajon, near 3rd and Madison, to Lindbergh Field plant, 3:30 p.m. to midnight shift. Call May Arestead, ext. 1208 LF or home 447-1240.

Personals

CONVAIR

We wish to thank all our friends in engineering at Lindbergh Field for the many cards, flowers, and thoughtful expressions of sympathy shown during the recent loss of our son.

Martin Montgomery & family
Dept. 564

* * *

My grateful thanks to our friends at Convair following the death of my husband William B. Gregovich, Dept. 031 retiree.

Elsie Gregovich

* * *

Your comforting expression of sympathy is deeply appreciated by the family of Martin M. Bernstone.

* * *

I would like to thank all the managers, scientists, engineers, supervisors, and fellow workers whom I have worked with, under, and over while employed with Convair-SD. It has been indeed a great pleasure.

L. E. "Jim" Cox
Dept. 780-1
Retired March 31

* * *

My heartfelt appreciation is extended to all who participated and wished me well at my recent retirement from Convair.

Elmer T. Gahlbeck
Dept. 046

* * *

We wish to express our deep appreciation and sincere thanks to our many Convair friends for the many cards, flowers and thoughtful expressions of sympathy extended to us at the recent death of our husband and brother.

Mrs. R. T. "Mac" McMurry
and family

* * *

My family and I wish to express our thanks to the many Convair friends for their expression of sympathy and kindness at the loss of our son, Gary, in Viet Nam.

Clarence E. Schultz
Dept. 001

Deaths

CONVAIR

YOUNGER—Charles W., Dept. 953-1, died April 17; survivors include his wife, Dorothy, and a son.

General Dynamics News

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San Diego editorial offices:

Kearny Mesa plant, Bldg. 8, Mail Zone 104-61, P.O. Box 1128, San Diego, Calif. 92112. Phone 277-8900, ext. 3322.

Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P. O. Box 1950, San Diego 92112.

Centaur D-1 Order Totals $24 Million

(Continued from Page 1)

the vehicle tank scheduled to begin May 17.

It is not scheduled for launch until 1973, however, and will be used in the AC-30 mission to start the Pioneer G probe on a flight of more than two years duration for its fly-by of Jupiter.

Other undelivered Centaurs under contract to NASA include three current Centaur D vehicles —for the AC-27 Pioneer F mission in 1972 and the AC-28 and AC-29 Intelsat IV launches in 1972—and a Centaur D-1T proof-test flight to demonstrate Centaur-Titan integration and performance and four-burn capability of the Centaur engines. (Centaur engines have been limited to two burns in previous launches.)

The Pioneer F and G missions will mark man's first scientific venture past Mars in the solar system, the first to enter the belt of asteroids between Mars and Jupiter, and the first to reconnoiter the sun's greatest planet (Jupiter) and determine if it is really a minor star.

Wilson said the improved Centaur D-1 vehicles will be updated and improved to lower cost and increase flexibility through use of an expanded airborne computer capability and improved avionics, insulation, and use of ground computers for checkout and launch operations.

Use of the new airborne computer system will enable the Centaurs to be adapted to different missions by changing computer data rather than hardware.

The improved Centaurs also will provide flight control and steering for the Atlas SLV-3D boosters, reducing weight and cost of the Atlas systems.

Use of radiation reflective insulation will permit the improved Centaurs to coast for several hours in space with minimum propellant loss before their engines are refired for precision payload delivery to synchronous orbit.

Increased use of automated pre-launch checkout and diagnosis by ground computer will speed and simplify countdown and launch sequences.

The uprated Atlas SLV-3D boosters will have increased thrust from their engines—with booster engines thrust increased from 336,000 to 370,000 pounds and sustainer engine thrust increased from 58,000 to 60,000 pounds. They also will have an improved autopilot system with their flight control and electronics integrated with the Centaur D-1.

Improved Centaur D-1T vehicles for use with Titan boosters will be enclosed in a 14-foot-diameter shroud, extending from the interstage adapter to the payload, during launch.

J. W. Vega is responsible for systems integration for the Centaur D-1 program, R. H. Thomas for mechanical systems, J. E. Fithian and D. W. Geyer for electrical systems, L. F. Buss for software integration, and W. G. Phillipp for Titan integration, and J. S. Harrison for Complex 36 modifications. Seymour Zeenkov will handle contract performance.

Two Atlas-Centaurs Prepared For 1971 Mariner-Mars Launches

(Continued from Page 1)

been assigned responsibility for the spacecraft and overall mission and NASA-Lewis has responsibility for the launch vehicles.

A geometric relationship between the sun, earth, and Mars this year has created an "unusually favorable launch opportunity" that will permit use of a direct-ascent launch and greater spacecraft weight than in the Mariner fly-bys of 1964 and 1969. The Atlas boosters being used also have higher-thrust engines than those used in the AC-23 and AC-24 launches in 1969.

The Atlas-Centaur will stand 113 feet and weight 32,105 pounds at liftoff.

Each flight will begin with a vertical rise for 15 seconds, a roll maneuver from 2 to 15 seconds to orient the vehicle to the required launch azimuth, pitch and yaw maneuvers from 15 to about 148 seconds, Atlas booster engines cutoff when 5.7 Gs is sensed by Centaur guidance, and booster engines jettisoning 3.1 seconds after booster engines cutoff.

The Atlas sustainer engine then will power about 103 seconds of flight, during which a yaw maneuver will be initiated if needed and Centaur insulation panels and nose fairing are jettisoned.

Centaur's 30,000-pound-thrust liquid hydrogen-burning engines will be fired 11.5 seconds after Atlas sustainer engine cutoff and will have a continuous burn of about 451 to 455 seconds until cutoff is commanded by a Centaur guidance signal.

The spacecraft will be separated from the Centaur 95 seconds after main engines cutoff and at a velocity of about 25,000 miles an hour.

The Centaur will be turned about 7½ minutes later and its remaining propellants vented unignited through its main engine nozzles to separate it further from the Mariner's trajectory and to insure it will miss Mars as it goes into permanent orbit around the sun.

★ ★ ★

A 28-man team from the Kearny Mesa plant was at the Eastern Test Range April 12-16 for flight readiness review of the Atlas-Centaur 24.

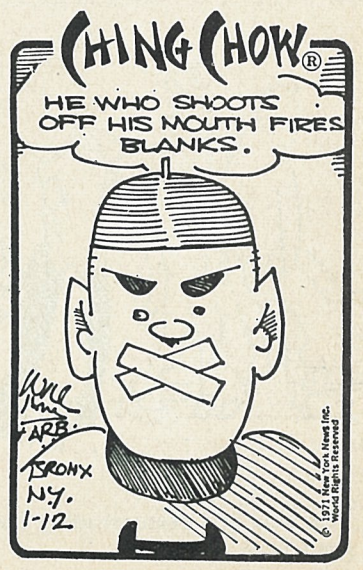
Also participating were Richard Jumont, NASA-Lewis resident representative at Kearny Mesa, and Jim Hudson of the Rocketdyne resident representative's office.

Heading the team were B. R. Foushee, Centaur D program manager; Karl Kachigan, chief of launch vehicle programs engineering; Ed Lindgren, Centaur project engineer; and W. D. Daniels, Atlas project engineer.

Charles Bierman was team coordinator. Others included H. L. Hahn, M. J. Debreceni, Murray Ogman, J. H. Derango, V. N. Owara, Charles Pruckner, Jim Heffron, R. L. Shoff, L. A. Del Casale, F. D. Kuenzel, R. A. Vogel, W. E. Evans, Ted Shamshoian, G. L. Tidwell, J. E. Geil, P. S. Yip, J. P. Silverstein, A. W. Wiest, Paul Buchy, L. D. Harber, W. P. Shine, P. B. Bunch, and K. R. Miller.

Salvage Schedule

Next employes sales day at the Convair salvage yard, Lindbergh Field plant, will be Saturday, May 1. Hours are from 8 a.m. until noon. Entrance is by badge. Children and pets are not allowed inside the yard. Also not permitted are canvas or open-toed shoes and bare feet.



DISNEY DELIGHTS — The younger set and their parents, too, enjoyed the five-hour family party at Disneyland sponsored by Convair Management Association. Attendance totaled 14,734 from Convair Aerospace, Electro Dynamic, and DatagraphiX facilities — and included 975 who made the round trip from San Diego by chartered buses. Many already are looking forward to next year's repeat of the annual outing.

Rutherford, Simmons Nominated For Presidency of Mgt. Club

Norman J. Rutherford, group supervisor of art and editorial and still photography sections in the graphic services department, and Charles B. Simmons, supervisor of administrative services for launch vehicle programs, have been nominated for the presidency of Convair Management Association for the 1971-72 club year.

Ballots mailed to each member of the association are to be returned by May 3. Officers elected will be announced at a Board of Directors meeting May 10 and in a bulletin to be distributed to the membership.

Rutherford has been with Convair Aerospace-SD and its predecessor firms 16 years and formerly held positions in service publications, customer service, long-range planning, marketing, and communication.

He is a graduate of Chouinard Art Institute and holds an associate in arts degree from Glendale College and a degree in industrial technology from Texas State Technical Institute. He is a member of the Technical Illustrators Management Association and serves on the San Diego Community Colleges' advisory board for commercial art instruction.

Simmons has been with Convair Aerospace-SD and its predecessor firms 15 years and formerly held positions in estimating, engineering facilities planning, financial control, and plant engineering.

He attended San Diego City College, San Diego State and LaSalle University Extension, majoring in business administration. He served last year as a member of the board of directors of the San Diego chapter of the National Estimating Society.

Simmons currently is serving as executive vice president of Convair Management Association.

Other nominees, selected by the nominating committee under the chairmanship of C. W. Blakey, are:

Executive vice president—R. J. Ratliff, Dept. 016-0;. Lyle A. Wood, 840-0.

Treasurer — M. R. Holmberg, 140-1; Art Medrano, 204-1.

Financial secretary — G. G. Christ, 763-0; T. W. Ochodnicky, 520-0.

Recording secretary — B. M. Bolen, 130-3; D. E. Evanson, 202-5.

Board of directors—D. O. Berhow, 800-0; Charlotte H. Bowen, 170-9; L. R. Imbimbo, 046-0; D. A. Menard, 141-4; G. E. Nuss, 400-1; and J. B. Ona, 562-0. (Three are to be elected.)

Thirteen Complete Leadership Class

Thirteen Electro Dynamic Division-SD Management Club members recently completed a Managerial Leadership course sponsored by the National Management Association.

Receiving certificates of completion were T. Brown, Dept. 922; S. I. Daily, 922; W. G. Dill, 426; R. W. Edge, 923; H. E. Fisher, 416; J. E. Hall, 922; S. B. Harkey, 614; R. D. Johnson, 424; R. S. Raviart, 426; J. W. Sheehan, 391; C. K. Stroburg, 711; J. Wesfler, 426 and J. J. Wokuluk, 711.

The club's educational committee has planned an "effective listening" workshop to be offered free to club members. The workshop will be held in the Lindbergh Field engineering auditorium, May 17-21 with Frank Westphal as instructor. Enrollment may be made through club boosters.

Is it news? Pick up a phone and call GD/NEWS

MANAGEMENT LEADERS — Graduates of recent Managerial Leadership course gather as G. G. Prentice, Electro Dynamic division-SD director of operations, (left foreground) presents certificate of completion to S. B. Harkey. Frank Westphal, Dept. 565, (right foreground) was course instructor.

Invitational Shoot Draws 35 to Range

Thirty-five shooters from General Dynamics families took part in the James K. Field Invitational trap shoot April 18 on the CRA gun range in El Cajon.

Winning hams for best performances were Jack Swank and Steven Swank from Stromberg DatagraphiX, Jack Rogers of Convair Aerospace-SD Dept. 575, Scott Kemper of Dept. 443, and Jan Jackson of Dept. 447. Al Firebaugh of Dept. 229 also won a ham in the "luck shot" event.

Field, who founded the range in 1955 and who formerly served 24 years as chief of employe benefits and recreation for the division, was presented a case of shells.

Frank Kemper and Gunner Gatterman, co-commissioners of the CRA Gun Club, were hosts for the event. Refreshments were provided for the participants by the Prophet Co. Each shooter fired 25 rounds at 16 yards and an additional 25 rounds at a handicap distance.

Gatterman said inclement weather threatened the event early in the day but cleared later. "Many of the participants had their families along and everyone seemed to have a good time," he said.

Beginners Course In Tennis Offered

A 10-week tennis class for beginners will be offered by CRA Tennis Club starting at 4:45 p.m. Wednesday, May 12, on the CRA courts at Kearny Mesa.

Classes will be open to all General Dynamics employes and their families and will be limited to 16 players. A fee of $3 will be charged to provide balls for the training sessions and a novice tournament to be scheduled at the end of the course.

Those interested may reserve a place in the class by phoning Inez Breeden at the CRA Clubhouse, ext. 1111 KM.

Coggan Will Speak At Retirees Lunch

B. F. "Sandy" Coggan, former San Diego plant manager and Convair vice president, will be featured guest speaker at the 11:30 a.m. May 11 retirees luncheon meeting in the CRA Clubhouse.

Walt Bailey, president of the newly formed General Dynamics Alumni Association, said all retirees and their spouses are invited to attend. A membership in the San Diego Zoological Society will be a door prize.

SCHNEIDER TOP MAN IN PISTOL COMPETITION

Red Schneider, Ernie Kampmann, and James Thomas took first places in master, expert, and sharpshooter classes, respectively, in CRA Pistol Club competition April 11. Schneider also was first in .22 short national course firing the same day.

CRA Calendar

(For information on CRA activities call CRA headquarters, ext. 1111 KM. Deadline for next issue of GD/NEWS is May 4. Call ext. 1071 LF or 3322 KM. All meetings are held in the CRA Clubhouse unless otherwise noted.)

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BADMINTON—Play 7-10 p.m., Mondays, Federal Bldg., Balboa Park.

BICYCLE CLUB—Call Bob Williams, ext. 1626 KM for information.

BONAIR FLYERS — Meet 7:30 p.m., May 6.

BRIDGE—Duplicate bridge sessions, 7:30 p.m., each Friday.

CERAMICS—Meet 9 a.m.-noon and 7-10 p.m., Tuesdays and Thursdays.

CHORUS—Rehearsals 7:30 p.m. each Monday.

COINEERS—Meet 7:30 p.m., May 10.

COUNTRY & WESTERN MUSIC — Meet 7:30 p.m. each Thursday.

FENCING—Workouts and instruction, 7:30-10:30 p.m., Fridays, YWCA, 10th & C Sts.

GARDEN CLUB—Meeting 7:30 p.m., May 5, Floral Association Bldg., Balboa Park.

GOLF—Chula Vista Muni tourney, May 1-2, 7 a.m. tee-off.

HEALTH CLUB—Open 9:30 a.m.-10 p.m., Monday through Thursday; 9:30 a.m.-9 p.m., Friday; 9 a.m.-noon, Saturdays; "women only" weekdays, 9:30-11 a.m.

HI-FI MUSIC—Meet 7:30 p.m., May 11.

ICE SKATING—GD family skate night 6:15-7:45 p.m. each Thursday, House of Ice, Interstate 8 and Lake Murray Blvd. Flat rate fee $1 (includes skates).

MINIATURE RAILROAD—Work sessions Saturdays and Sundays, CRA Missile Park.

MODEL HO RAILROAD—Work session 7 p.m., each Tuesday, CRA Missile Park.

PISTOL CLUB—Shoot 9:15 a.m., May 9, S.D. Police Pistol Range, Federal Blvd. & Home Ave.

RADIO CLUB—Meeting 7:30 p.m., May 4.

RETIREES—Luncheon meeting 11:30 a.m., May 11.

RIFLE CLUB—Senior shoot 7 p.m., tonight (April 28). Junior shoot 9 a.m., May 1.

ROADRUNNERS—Meet 7:30 p.m., April 29, Gillespie Field Clubhouse.

SAILING—No meeting tonight (April 28). Next meeting will be May 26.

SCULPTURE—Workshop sessions 7:30 p.m. each Monday.

SKI CLUB—Meeting 7:30 p.m., May 4, South Bay Club recreation room.

SOFTBALL—Teams now forming. Managers meet 7:30 p.m., April 29.

SPORTS CAR CLUB—Wheel Try III, May 16 at Kearny Mesa plant parking lot. Registration at 10 a.m.

SQUARE DANCE — Dance 8-10 p.m. each Thursday.

TENNIS—Beginners class starts May 12, CRA courts.

TOASTMASTERS—Convair Toastmasters meet 4:30 p.m. each Wednesday. Dynamic Toastmasters meet 5:30 p.m. Thursdays.

TOURS—Las Vegas Trip, June 11-13.

TRAILERS—Meet 7:30 p.m., May 4.

WOMEN'S GOLF—Monte Vista tourney, May 8, 7:10 a.m. tee-off.

Slalom Scheduled For Sports Drivers

Convair Sports Car Club has scheduled Wheel Try III, a San Diego Asebring Association championship slalom, for May 16 on the northeast parking lot at the Kearny Mesa plant opposite the entrance to CRA Missile Park.

About 100 sports car drivers from clubs in the San Diego area are expected. Cars in nine different classes will compete with trophies going to drivers completing a course marked by pylons in the shortest times.

Registration and car inspection will begin at 10 a.m. with the first run scheduled at 10:30 a.m. Seat belts and helmets will be required.

Co-chairmen for the event are Gary Rankin, ext. 1678 LF; Dennis Smith, ext. 2043 KM; and Marv Jensen of DatagraphiX.

Nickel Coin Theme For May 10 Meeting

"Nickel coins of the world" will be the theme for CRA Coineers meeting at 7:30 p.m. May 10 in the CRA Clubhouse. Trophies will be awarded for best exhibits reflecting the theme, a 1962-D nickel will be give-away coin, and door prizes and a drawing are scheduled.

Forty-six club members and guests attended the club's installation of officers banquet April 10, in the Catamaran Hotel. Pete Mitchell was guest speaker, John De Pauli was installing officer, Howard Musick was master of ceremonies, and Joe Garside was drawing chairman. Trophies were won by Vince Bacon, Joan Noga, and Chuck Willey.

General Dynamics is an Equal Opportunity employer.

Bus Trip to Vegas Planned For June

Convair Recreation Association has scheduled a bus trip to Las Vegas June 11 through 13.

Cost will be $44.50 per person for single room occupancy and $32.50 per person for double occupancy. Included will be round-trip bus fare with two nights at the Stardust Hotel, a special breakfast and buffet at the Stardust, and a champagne party and lunch at the Castaways Hotel.

The bus will leave the CRA Clubhouse at 5:15 p.m. June 11 and return from Las Vegas at 1 p.m., June 13. Reservations can be made through employe benefits offices or the CRA Clubhouse.

'Day at Races' Slated At Caliente June 13

Convair Management Association has scheduled another "day at the races" at Caliente Turf Club in Tijuana on June 13. Cost of $2.75 will cover bus transportation from the border at 11 a.m., a social hour at noon, a deluxe buffet luncheon at 1 p.m., and the afternoon of racing.

Tickets will be available through club boosters beginning May 24. Mike Alianelli, event chairman, said children will be welcome at the regular price.

Aching Legs Slated For 147-Mile Trials

Four rides have been scheduled by the CRA Bicycle Club for May. Sunday, May 2, a 12-mile Shelter Island tour is set for 2 p.m.

On May 8, cyclists will invade Scripps Ranch for a 25-mile ride. A North County Grand Tour 60-mile ride will be held May 9. Rounding out the schedule is a 50-mile Alpine ride on May 22.

Three-Digit Phone Numbers Dropped In Changeover For New Service at SD

Three hundred three-digit telephone extension numbers at the Lindbergh Field plant have been changed to four-digit numbers during the past few days as the first step in a series of changes required for expansion of telephone service to become effective in July.

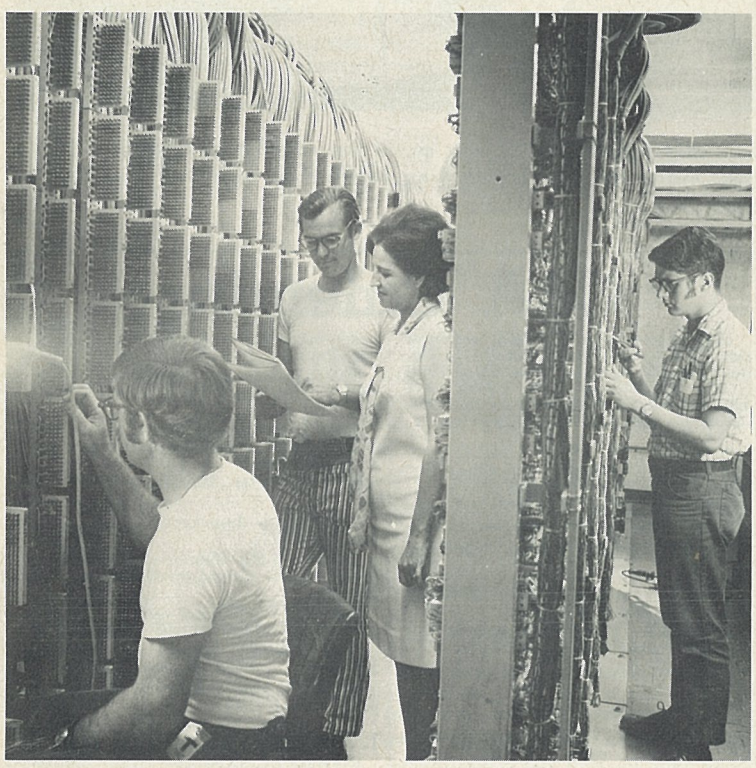
Doug Zink, group supervisor of office services for Convair Aerospace-SD, said the expanded service will permit direct dialing from Kearny Mesa and Lindbergh Field to Convair Aerospace Division's Fort Worth operation.

Zink said the expanded telephone service, in addition to simplifying inter-division phoning between San Diego and Fort Worth, will reduce costs.

In the extension changes at Lindbergh Field, most 400 extension numbers were converted to 2700, most 500 numbers to 2800, and most 600 numbers to 2900 — with the last two digits of the original number remaining the same.

Zink said a new telephone directory for Convair Aerospace-SD and Electro Dynamic-SD functions and personnel will be issued in July about one week prior to the cutover for expanded direct-dial service.

New dialing codes will be included for the Lindbergh Field and Kearny Mesa plants.



CHANGING CIRCUITS — Eloise Dyer, Lindbergh Field plant switchboard leadlady, is briefed on changes made by Western Electric installers to prepare for expanded phone service. Changing circuits to eliminate three-digit numbers, from left, are Larry Willhite, Bob Howard, and Wayne Lipska.

Heller, Withem Honored For Service

Among veteran Convair Aerospace-SD employes honored at retirement parties this month were E. D. Heller, manager of cost reduction and value control, and G. O. Withem, chief of data systems.

Heller had been with Convair and the former Astronautics Division since 1946, including seven years as a Convair employe at Pomona, with previous positions ranging from senior design engineer and chief of electronic production and factory test for guided missiles to staff engineer, manager of manufacturing development, and engineering staff specialist.

He plans a retirement trip to South Africa to visit relatives in Cape Town and Durban and to conduct a value engineering seminar for the National Development and Management Foundation of South Africa.

Withem joined Convair in 1941 and became a tabulating machine operator the following year, tab assistant supervisor in 1952, tab supervisor in 1956, chief of data processing in 1961, chief of data systems and programming in 1962, data systems and programming general supervisor in 1965, and chief of data systems in 1966.

Most of the San Diego operation's data systems personnel have attended courses he established in-plant and he has also instituted several computer programming courses for Explorer Scout and high school youth groups in this area. He is on medical leave prior to retirement.

Complete Eye Exams Offered With Prescriptions For Glasses

Convair Aerospace and Electro Dynamic personnel in San Diego now can obtain comprehensive medical eye examinations with safety glasses prescriptions at reduced cost.

Del Dimmitt, chief of safety and fire, said services will be available through the Ophthalmology Medical Group at 550 Washington St. (near Mercy Hospital) for the complete eye examinations and prescriptions. Grinding of the prescription lenses is handled by an optical firm at reduced rates under a separate contract.

"The cost of $15 can be paid by payroll deduction or in cash at one of the safety cribs," Dimmitt said. "Each employe will be guaranteed satisfaction with his eye glasses prescription, measurements, and fit of spectacles."

Employes needing prescription safety glasses will pick up a prescription form at one of the safety cribs, arrange for payment of the fee, and phone Ophthalmology Medical Group for an appointment — specifying that they are a Convair Aerospace or Electro Dynamic employe.

The medical examination will include examination of each eye's external appearance, retina, and muscle balance; a tonometer measurement of interocular pressure as a test for glaucoma if indicated; diagnosis of any existing eye disease; refraction and complete measurements; and the prescription for glasses.

The prescription from the physician is to be returned to the safety crib, frames selected as desired, and payment made for the frames and lenses.

GRAND AWARD — National first place award plaque in industrial division of National Fire Protection Association contest is presented to Convair Aerospace-SD fire section by Dr. John McCann, left center, Corporate director of health, safety, and security. Accepting are Del Dimmitt, chief of safety and fire, and Stan Sharp, manager of industrial security. Firemen, from left, are Julius Setmire, Duane Lange, Don Spencer, Charles Hamel, James Johnston, and Peter Houtkooper.

Technical Report Listing Obtained

A filmed compendium covering Defense Documentation Center holdings of scientific and technical reports announced during the 1960s has been obtained by Convair Aerospace-SD's library and information services section.

Dean H. McCoy, supervisor of administration and information services, said the compendium meets a long-expressed need in libraries and other data banks by providing an indexed look-up capability in accession-number order for all documents announced by DDC during the 10-year period.

"The era of the 1960s saw a richness in research never attained before," he said. "This in itself makes this data package significant, even vital, to American research and technology."

The film is being placed in cartridges and will be ready for use early next month at the Kearny Mesa library. Duplicate sets also will be available at the Lindbergh Field library in the near future.

McCoy said a special bibliography with indexes on aeronautical engineering also was received recently from NASA. It contains annotated references to unclassified reports and journal articles introduced into the NASA scientific and technical information system and announced between January and August, 1970.

HEAT TREATMENT — Dr. Ralph Doughty, project aerothermodynamics engineer, sprays space shuttle booster model with heat-sensitive paint that changes color at high temperatures. Model that had completed test run in NASA Langley's Mach 8 variable-density wind tunnel is shown in foreground at right (dark areas were most affected by heat). At left is grid model in tests to pinpoint precise area of color-change.

Paint Sprayed on Booster Models Helps Predict Degrees of Heat

Special paints that change color at high temperatures are helping Fort Worth operation engineers predict how extreme heat will affect the booster section of the space shuttle as it re-enters the atmosphere.

The paints were sprayed on nine-inch long booster models before they were placed in NASA Langley's Mach 8 variable-density wind tunnel. Each paint used was designed to change color at a specific temperature, ranging from 109 to 700 degrees F.

The models were constructed with a steel core and a silicone-rubber outer coating. "The steel was used to enable the models to withstand the force of the hypersonic blast," said Dr. Ralph Doughty, project aerothermodynamics engineer and task leader. "The silicone-rubber coating was used to retain heat in localized areas, allowing surface temperatures to rise so that the special paint would change color."

Each booster model was tested in the 18-inch hypersonic tunnel for from 6 to 12 seconds. Areas of the model affected most by the heat-generating high-speed winds turned color first; other areas of the model's surface changed color as the test progressed.

Moving pictures of each test were made so that engineers could fix the precise time—and point on the model—of each color change.

"To help us fix the exact location of the color change, we first photographed a special 'grid model' in the tunnel in the exact position of the regular model to be tested," Dr. Doughty said. "Test results of regular runs were then superimposed on the photo of the grid model to pinpoint the exact location of color changes."

In this way, engineers were able to come up with a "contour map" showing distribution of heating rates on the model. The map also showed how shock waves striking the model magnified heating rates in that area.

Heating rates observed in these and earlier tests indicate that the full-size booster's surface will reach temperatures ranging from 1,800 to 2,500 degrees F. during re-entry.

Even though the color-change temperatures of the special paints was limited to a maximum of 700 degrees F. for these tests, engineers can project these basic findings to determine how the actual booster will withstand higher temperatures.

Dr. Doughty said the booster would re-enter the atmosphere at a high angle of attack. This means, in effect, that the under side of the booster would be used as a "brake" against the atmosphere, and this is where the highest heating rates would occur.

The re-entry phase—from the time the booster propels the orbiter into space until it turns on its air-breathing engines—will take only a little over six minutes.

"We feel these tests were extremely helpful in telling us what to expect during this crucial time period," Dr. Doughty said. "For one thing, we found that air-breathing engines mounted externally beneath the wings wouldn't be feasible. They simply create too much disturbance of the flow field, causing excessive heating rates.

"We know, too, that it'll take very tough materials in certain vital areas, such as at wing leading edges, where temperatures can reach as high as 2,500 degrees F."

"During the analytical phase of the program," Dr. Doughty said, "we developed a computer procedure for predicting the heat transfer to a hypersonic re-entry vehicle such as the space shuttle booster."

The heat transfer test and analysis program was conducted by the aerothermodynamics group, headed by R. A. Stevens. O. R. Brock, senior aerothermodynamics engineer, wrote the computer program for predicting heat transfer to an arbitrary hypersonic vehicle and made heat-transfer predictions for the wind tunnel models and for a full-scale booster. R. C. Erickson, senior aerothermodynamics engineer, did data reduction and analysis and monitored wind tunnel tests at NASA Langley.

Kaarlela Lectures On Heat Treatment

W. T. Kaarlela, Dept. 64-6 at Fort Worth, project engineering metallurgist, recently gave two lectures on "Heat Treatment of Steel and Forming of Metals." The sessions were part of the 1971 Metals Engineering Institute program presented by the North Texas chapter of American Society of Metals at University of Texas at Arlington.

SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

Vol. 24, No. 10 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, May 12, 1971

David Lewis Warns Of Tight Defense $

(Following are remarks delivered by David S. Lewis, Chairman of the Board of General Dynamics Corporation, at the company's annual meeting, held this year at Pomona, Calif.)

I would like to comment briefly on the affairs of the Company and to bring you up to date on several things that have happened since our annual report was issued.

To begin with, let me say that I hope each of you has read the report carefully, as we believe it gave an accurate and realistic picture of our corporate health at year end.

We are in a period of the most significant change in our primary business areas since World War II. If our company is to grow in this difficult period, we must:

- recognize that the changes are probably permanent;
- attempt to analyze the nature of those changes;
- and most importantly, take the actions necessary to permit us to compete in the new marketplace resulting from those changes.

Let's talk about some of the changes.

There is no question but that the majority of our citizens, growing increasingly disenchanted with the war in Indochina, are demanding a reordering of our national priorities.

For Fiscal Year 1972 the Administration has submitted the lowest defense budget, in terms of Gross National Product, since 1953 — the end of the Korean War.

Similarly, funds for space programs are being cut, and NASA is finding it increasingly difficult to gain the public and congressional support required to keep our country's vital space technology moving ahead.

The hard facts are that our principal customers have less money to spend today and the trend for the near future is down, in spite of the fact that there remains a clear and present danger to our national security—and despite the ample evidence that much of our military hardware inventory is in an advanced state of decay—and not withstanding the clear indications that the Russians are spending more for research and development of military and space systems than we are.

Having given you, briefly, our interpretation of our changing business environment, I would now like to talk about some of the ways in which we in General Dynamics are moving to adapt to these new conditions surrounding our traditional lines of business.

In the defense/space area, we have improved our system of preparing and reviewing bids, and we are streamlining our

(Continued on Page 6)

AMERICA NEEDS YOUR HELP -

BUY U.S. SAVINGS BONDS

DC-10 Sections Take Sea Route

(Photo on page 2)

On May 1 and 2, 1970 Convair Aerospace-SD shipped by sea and truck two barrel sections for the DC-10 from San Diego to the Douglas Long Beach plant.

Almost to the day, one year later, a similar shipment was successfully accomplished. Both shipments were of C/D and F/G sections. And both deliveries by the sea route were necessary in order to meet requirement schedules because of the unavailability of the Super Guppy.

Jack Hurt, DC-10 program manager, reported that shipment by water may be more frequent in the future. As NASA's space program requirements are expanding, conversely, the accessibility of the Super Guppy will decrease.

Combating this problem, Hurt noted, on April 24 Convair for the first time made delivery of three sections in one day using the Super Guppy. Another such accomplishment is planned late this month when the airplane next becomes available.

Drive Will Stress New Bond Buyers

Convair Aerospace-SD and Electro Dynamic-SD have scheduled a combined U.S. Savings Bonds campaign May 17 through 26 with emphasis on signing of new bond buyers and encouraging current participants to increase their savings.

Series E bonds are now a better buy than ever. They are currently paying 5½ per cent interest when held to maturity. Bonds being held for short-term savings purposes can be redeemed as needed after 60 days.

M. C. Curtis, vice president and general manager, Convair Aerospace-SD, and W. E. Bratton, vice president and general manager, Electro Dynamic-SD, said the new interest rates for Series E bonds make bond buying through the payroll savings plan more attractive than ever this year.

"With interest rates on other types of savings declining and those for Series E bonds at an all-time high, purchasing of Savings Bonds through payroll deduction has become an even safer and more profitable way to save," Curtis and Bratton said.

All employes not now purchasing Savings Bonds through payroll deductions will receive sign-up cards from their supervisors. The supervisors also will have cards for those wishing to increase their level of participation.

Paul Allgire, chief of employe benefits for Convair Aerospace-SD who is directing the combined campaign, said investments in Savings Bonds through the payroll savings plan provides an easy way to save since the automatic deduction is made before the employe receives his payroll check.

"This way, no matter how small the amount being set aside, the individual is saving something regularly," Allgire said. "Employes can sign up for as little as 50 cents a week."

Supervisors for each department will provide information sheets on the Savings Bonds program for all employes.

Departmental coordinators for Convair Aerospace-SD include Bill Ochodnicky, engineering; Walt Blakey, contracts; Fred Wynkoop, controller; Manuel Moseley operations; Frank Robbins and Leonard Perry, material;

Continued on page 2)

Entering Bomb Contest 'Cold,' FB-111 Chalks Excellent Score

The FB-111 has made its point: it can definitely carry out the combat mission Strategic Air Command has assigned it.

A variable-wing bomber from 340th Bomb Group at Carswell AFB, Texas, dramatized the point by spanning the Atlantic and making the second best bomb run in Royal Air Force's recent bombing competition.

"We demonstrated beyond doubt that the FB-111 can perform its SAC mission—and do it with a high degree of efficiency," said Col. Ken Greene, 340th commander.

Lt. Col. R. S. Russell piloted the 340th FB-111, while Maj. A. R. Ely Jr. served as navigator. SSgt. James R. Burke was crew chief.

The Carswell-based FB-111, along with an FB-111 from Pease AFB, N.H., took off from the east coast base at 1:30 a.m. April 17. The planes were refueled over the Atlantic by a KC-135 tanker.

After crossing the coast of Eng-

(Continued on Page 4)

ETR Launch and Test Support Continued by NASA Contract

Convair Aerospace-SD has been awarded a $7.9 million contract by NASA's Lewis Research Center for continuation of launch and test support services at the Eastern Test Range (ETR) until April 1, 1972.

Options for additional tasks with a combined value of $400,000 also is included.

Ron Stoneburner, contract administrator for Convair Aerospace-SD, said the new contract will include ETR launch and test support services for the Atlas-Centaur 23 and 24 Mariner-Mars missions, Atlas-Centaur 26 and 28 Intelsat IV commercial communications satellite launches, Atlas-Centaur 27 Pioneer F mission for Jupiter fly-by, and Atlas-Centaur 22 Orbiting Astronomical Observatory mission. Pre-launch activity for the Atlas-Centaur 29 Intelsat IV launch also is included.

Other tasks covered include ETR post-launch flight analysis for each of the scheduled launches, initial modification work on Complex 36A for Centaur D-1A launch capability, and selected Titan-Centaur integration tasks.

Representing Convair Aerospace-SD in the contract negotiations, in addition to Stoneburner, were Fred Major of the Centaur program office and R. H. Taddiken and Larry Rodriguez of estimating.

Fred Schwend Named Data Systems Chief

Fred D. Schwend has been appointed chief of data systems (Dept. 151-0) for Convair Aerospace-SD. He reports to L. E. Shea, manager of management systems, and succeeds G. O. Withem who is retiring.

Schwend, who first joined Convair in 1957 as a plaster pattern maker, received his degree in business administration with distinction in business management in 1960 from San Diego State College and has had graduate studies there.

He has served Convair Aerospace-SD and its predecessor firms for the past 11 years as a computer programmer, senior programmer, data systems applications specialist, and data systems supervisor.

A Message From M. C. Curtis:

(M. C. Curtis, who recently took over as general manager of Convair Aerospace, San Diego operation, issued the following message this week.)

The question I most often hear as I come through our plants in San Diego is "What's going to happen to us? You're the boss now, certainly you must know?"

Fair enough. Although nobody has all the answers, I do have some thoughts about what can happen—and what we have to do to make it happen.

First, we should clearly understand these are tough times in our industry. There just isn't enough business to go around. When a company got on the downslope, people used to say all it takes is a new contract and they'll be back in shape. Maybe so, but that's just not the case today. New contracts are important, make no mistake about that, but complete devotion to the way we handle the ones we already have is what it takes first.

And that's one of my main points: to succeed during these times, we're going to have to consistently turn in superior performance while facing the challenges.

Frank Davis has taken on a big job in bringing together our two operations; but I've been associated with him for many years and know that he's the man for the job. Convair Aerospace is going to be a team—a single company consisting of an engineering department, sales and planning groups, and the Fort Worth and San Diego plants.

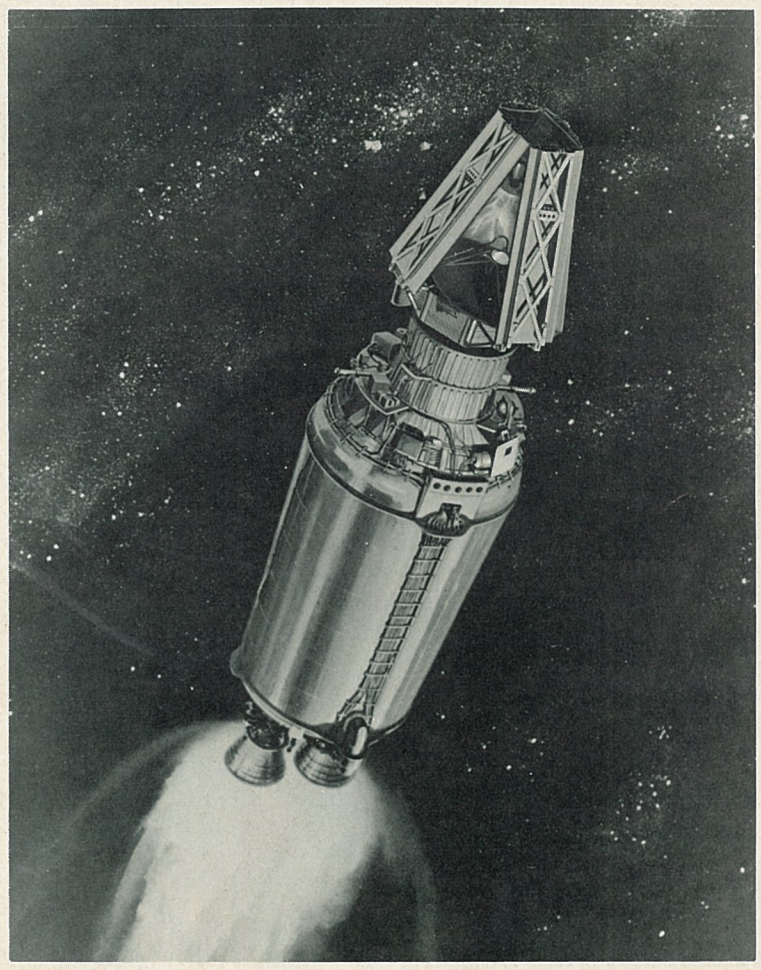
Our San Diego operation is facing quite a challenge. We have various programs with diverse customers to serve and we're not faced with production lines all running down at once. Atlas and Centaurs have solid futures in front of them and we're just be-

(Continued on Page 2)

Benefacts Reports Being Distributed

Salaried employes at Convair Aerospace-SD and Electro Dynamic-SD are being mailed Benefacts reports outlining their benefits from hospital and medical, dental, disability, death, early retirement, normal retirement, and Savings and Stock Investment Plans.

Paul Allgire, chief of employe benefits for Convair Aerospace-SD, said the Benefacts reports this year also include an estate planning section for use in listing other personal life insurance and assets.



MARINER METHOD—Drawing by Jack Davis and George Lang, Convair Aerospace-SD illustrators, depicts Centaur high-energy second-stage launch vehicle starting Mariner spacecraft on six-month, 280-million-mile curvilinear flight to orbit planet Mars. Atlas SLV-3C booster, separated previously prior to start of Centaur engines, powers first portion of launch sequence.

GOLDEN JUBILEE—Wing Commander E. J. Whitehead of the Royal Australian Air Force cuts cake in commemoration of the 50th anniversary of the RAAF March 31. Assisting are M. C. Curtis, then Fort Worth general manager, and Col. W. J. Trice, AFPR com-

Message Gives Outlook at SD

(Continued from Page 1)

ginning to roll on DC-10. But our start has been creaky and in these times that could be disastrous. What we must do is become more efficient.

That means every one of us must look at his job as the make-or-break step in the process, because in the final analysis, that's exactly what DC-10 may be for us—a make or-break program. It very likely could carry us through these troubled times; but with such high stakes it could virtually wipe us out if we fail to deliver as promised.

On the space side, I think we're dealing from strength. Atlas and Centaur were both pioneers in the launch vehicle business and have proved to be so reliable that by updating them the customer has been able to meet ever-increasing payload requirements. Our most recent space success by Atlas and Centaur—the near-flawless launch of an Intelsat IV worldwide communications satellite—could very well be the first in a number of commercial uses for our space boosters. And for NASA we're sending Mariner-Mars payloads up close to Mars on twin launches this month. This sort of background — original thought, development, and sustained performance—will be big plusses for us as we pursue the next three major pieces of space business: orbit - to - orbit-shuttle, earth-to-orbit-shuttle, and RAM.

Centaur is a real contender for OOS—and a fine example of the sort of creative thinking demanded in today's stringent aerospace environment.

RAM is an opportunity with a slightly different angle. Our victory in the recent design competition puts us in a commanding position for later hardware, but any complacency on our part and we'll end up second best, like the hare.

This summer, NASA will put out RFPs for the shuttle development and hardware; our part is the booster and competition will be tougher than ever—McDonnell Douglas with years of Thors behind them, and Boeing with Saturns and Minutemen. But I'm convinced that we've got the right cards in our hands, it's a matter of how we play them—and that's once again where we absolutely must be an efficient, responsive team, ready to roll with change.

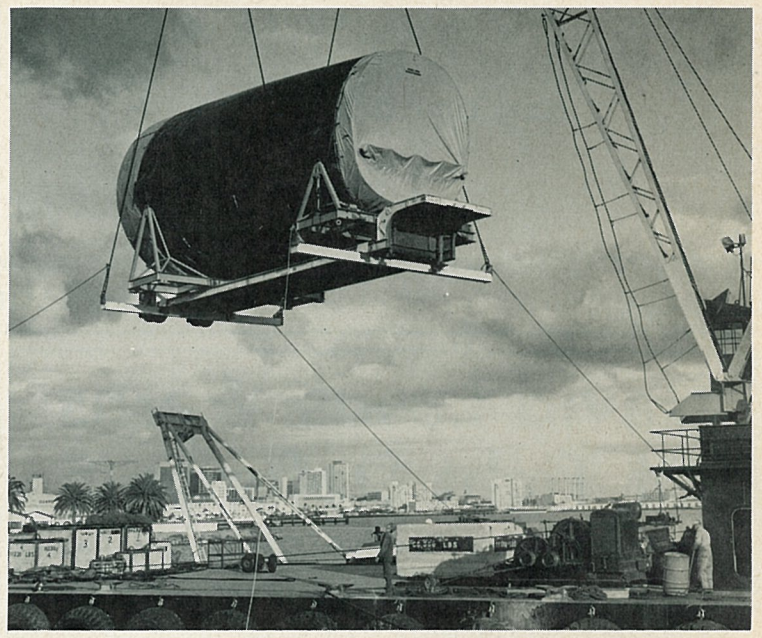
There are many other activities in the works here, and I don't mean to slight them. I just selected these because they most certainly will have the greatest impact on our future, on our very jobs.

Employment is way down everywhere in aerospace, but we've been particularly fortunate here, with only a gradual reduction in our workforce. Naturally there has been some change in mixture, with production up and engineering down somewhat, but not the staggering numbers other companies have laid off. And I sincerely believe we can avoid those big layoffs if we really cut the mustard on DC-10, if we don't let up on the other programs, and if we continue to earn those craftsmanship awards with the highest quality products.

Frankly, I'm quite enthusiastic and most humble about my new assignment. You have a fine reputation, and I have great respect for you; I know you earned it. And I'm still an old Convair man at heart—I started here twenty years ago, and I guess my long suit has become production, which is just what we've got to do from here on out—produce.

So let's not rest on that reputation, let's build on it. Let's put everything behind us except the challenge of today, and become the no nonsense aerospace company with a future.

M. C. Curtis
vice president
and general manager,
Convair Aerospace-SD.



BOARDING — Barge crane hoists F/G fuselage section for DC-10 tri-jetliner No. 21 to place it aboard boat Sea Trader for ocean voyage to Long Beach pier. Note San Diego skyline in background. Section C/D for same fuselage also was shipped at same time.

Lt. Col. J. B. Garrison Receives Joint Services Commendation

Lt. Col. Joseph B. Garrison, chief of the Defense Contract Administration Services Office at Convair Aerospace-S.D., was awarded the Joint Service Commendation Medal in ceremonies April 29 at DCAS regional headquarters, Los Angeles.

Lt. Col. Garrison, who will retire after 30 years of active Air Force service when he leaves Convair Aerospace-SD June 30, received the medal and an accompanying citation from Brig. Gen. John Chandler, commander of DCASR-LA.

"I believe this honor, which I deeply appreciate, was arranged a little early so I can wear it a couple of months before I hang up the uniform," he commented.

"I have been working with missile systems since 1956 and I can think of nothing I would rather have done during this span of time. I have met and worked with some of the finest people in the world."

The citation accompanying the commendation medal cited Lt. Col. Garrison for "distinguishing himself by exceptionally outstanding service" as chief of DCASO since September, 1968.

"Through his outstanding leadership, Lt. Col. Garrison has integrated the DCASO into an efficient and effective contract administration team," the citation said.

Col. Charles F. Merz, commander of the Defense Contract Administration District-San Diego, recommended Lt. Col. Garrison for the award.

Lt. Col. Garrison was commended for his efforts in resolving problems related to transfer F-111 subassembly work to San Diego; maintaining an excellent record in contract administration functions; rescreening that resulted in return of surplus material valued at $79,336 to operational inventory; promoting technical communication between DCASO engineers, the contractor, and various governmental buying activities; and instituting production meetings on major contracts to include all aspects of contractor performance in schedule, funds, manpower, and problem resolution.

HONORED—Lt. Col. J. B. Garrison, chief of DCASO at Convair Aerospace-SD, displays Joint Service Commendation Medal he has been awarded.

Lt. Col. Garrison came to Convair Aerospace-SD in 1967. He previously served four years at Rocketdyne, four years with the USAF Ballistic Systems Division in missile procurement, and two years as chairman of the Minuteman Production Board before coming to Convair.

SHOE WIN—J. W. Taylor of Dept. 840-3, left, is fitted for free pair of safety shoes by Ray Lange, right, material sales supervisor, as safety engineer Spence Preston looks on. Material sales won monthly safety contest and Taylor's name was drawn in employes' raffle for safety shoes.

San Diego Section of ASQC Regains Title as 'Nation's Best'

San Diego's section of the American Society for Quality Control next week will receive the national ASQC Raymond S. Saddoris Award for having been judged best managed ASQC section in the nation during the past year.

The award will be presented at the opening session of ASQC's 25th annual technical conference in Chicago. Sam Petcher of Convair Aerospace-SD's Dept. 140-2, national ASQC Saddoris Award committee chairman, will present the award plaque to W. J. Wilkinson, chief of the quality branch of the Defense Contract Administration Services District-San Diego and chairman of the San Diego ASQC section.

L. I. "Russ" Medlock, director of reliability control for Convair Aerospace-SD and outgoing national ASQC president, will preside at the annual conference.

Convair Aerospace-SD will display a 20-foot exhibit, designed by Tom Hosaka of Dept. 517-0.

It will contain the San Diego operation's U.S. Air Force Sustained Craftsmanship Performance award plaque and banner and will feature paintings by Jack Davis and Roy Gjertson of Dept. 517-0 on the Stinson, PB-2Y, PBY, B-24, F-106, Atlas-Mercury, Mariner-Mars, F-111, RAM, OV-1, Intelsat IV, and Space Shuttle programs.

Convair Aerospace-SD personnel attending, in addition to Medlock and Petcher, will include Paul Gelles, A. J. Woodington, L. I. "Fritz" Fredrickson, C. L. "Butch" Amaral, W. E. Magnuson, W. M. "Buster" Carlson.

Electro Dynamic will be represented by R. H. Nicholson, director of quality assurance for Electro Dynamic-SD and ASQC west coast executive director and Region 7 director, and Tom J. Donnelly, Electro Dynamic east coast representative.

Joe Bowers of Convair Aerospace-SD's Dept. 140-2 was Saddoris Award committee chairman for the section. The section previously had won the award for two consecutive years in 1967-68 and 1968-69.

Drive to Emphasize New Bond Buyers

(Continued from Page 1)

Richard Peck, legal; George Schmiedel, industrial relations; John Beckman, DC-10; Paul Green, launch vehicle programs; Nick Durvis, marketing; Jack Reynolds, space shuttle; J. F. Baebler and E. L. Jacobson, reliability control; Marv Tooley, Eastern Test Range; Ray Forrest, Vandenberg AFB. Lou Braun, will assist Allgire at Lindbergh Field.

Departmental coordinators for Electro Dynamic-SD include D. G. Moody, special programs; J. E. Green, engineering; B. L. Coleman, quality assurance; C. C. Clickner, industrial relations; J. M. Farrar and M. E. Kriedeman, operations; P.D. Jordan, administration; T. J. Kelly, sales; R. A. Clark, contracts; and Don Kerr, controller.

J. M. Wild Takes Post With AIAA Section

John M. Wild, director of engineering technologies for Convair Aerospace-SD's research and engineering department, will be installed as vice chairman of the San Diego section of the American Institute of Aeronautics and Astronautics at an annual banquet at 7 p.m. Friday (May 14) in the Atlantis restaurant. Reservations can be made by phoning Lil Gallegos at 291-7311, ext. 7216.

QUALITY PLATE—L. I. Medlock, Convair Aerospace-SD director of reliability control and president of the American Society for Quality Control (ASQC), looks over appropriate new license plate on his auto. Fee of $25 for special plate went to a California state fund to fight air pollution and support other environmental programs.

Atmospheric Research System Demonstrated Successfully at FW

An Atmospheric Research System (ARS) designed to gather data for basic atmospheric research for Air Force scientists was demonstrated at Fort Worth operation recently.

Fort Worth engineers designed and built two ARS production models under an approximate $1.7 million contract with the Air Force Flight Dynamics Laboratory of Air Force Systems Command.

The ARS met a major milestone recently when it was installed and removed on an Air Force WC-135B in the required four-hour limit.

Observing the demonstration were representatives from Hq. USAF, Air Force Flight Dynamics Laboratory, Air Weather Service and Oklahoma City Air Materiel Area.

"The demonstration went smoothly," said W. E. Early, ARS project leader, "and we completed it well within time limits."

Following the demonstration, Air Force crews subjected the ARS to a series of aerodynamics flight tests at Fort Worth. Air Force crews will then phase the ARS through about three weeks of functional tests at McClellan AFB, Calif.

ARS is designed for flying on RB-57F and WC-135B weather reconnaissance aircraft, although it can be fitted on the fuselage of many large aircraft.

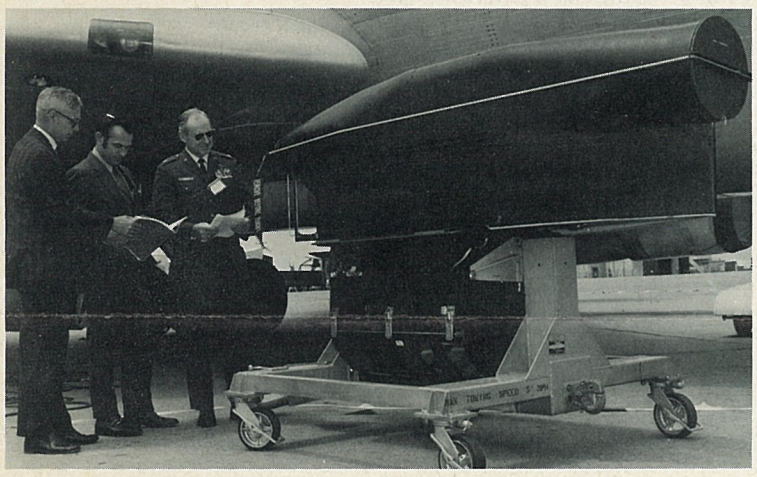
The system is about 9 feet long, 6 feet deep and 3 feet wide; the inlet is about 6½ inches in diameter, the outlet about 12 inches across.

"The ARS has sixteen 14-by-14-inch filters in a magazine," said Early. "They are remotely controlled so that when the desired data is gathered on one filter, it is retracted and another put in its place."

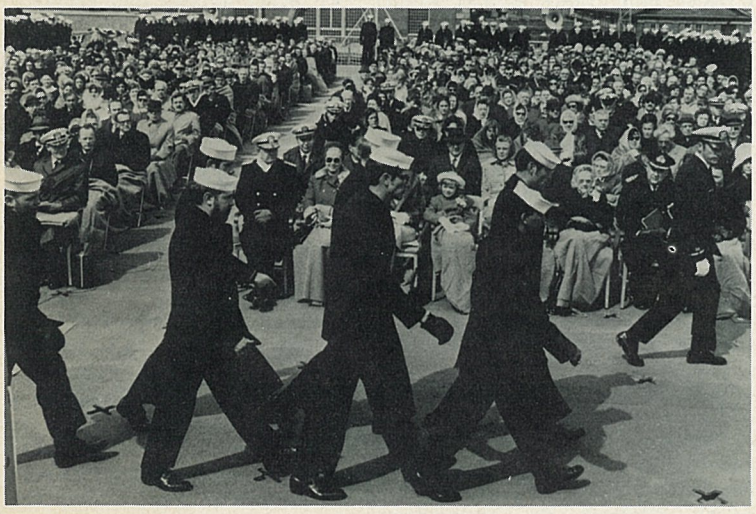
"We feel the ARS is much more reliable than existing systems in use," Early said, "and for this reason we think it'll perform much more efficiently."

Navy Contract Let To Electric Boat

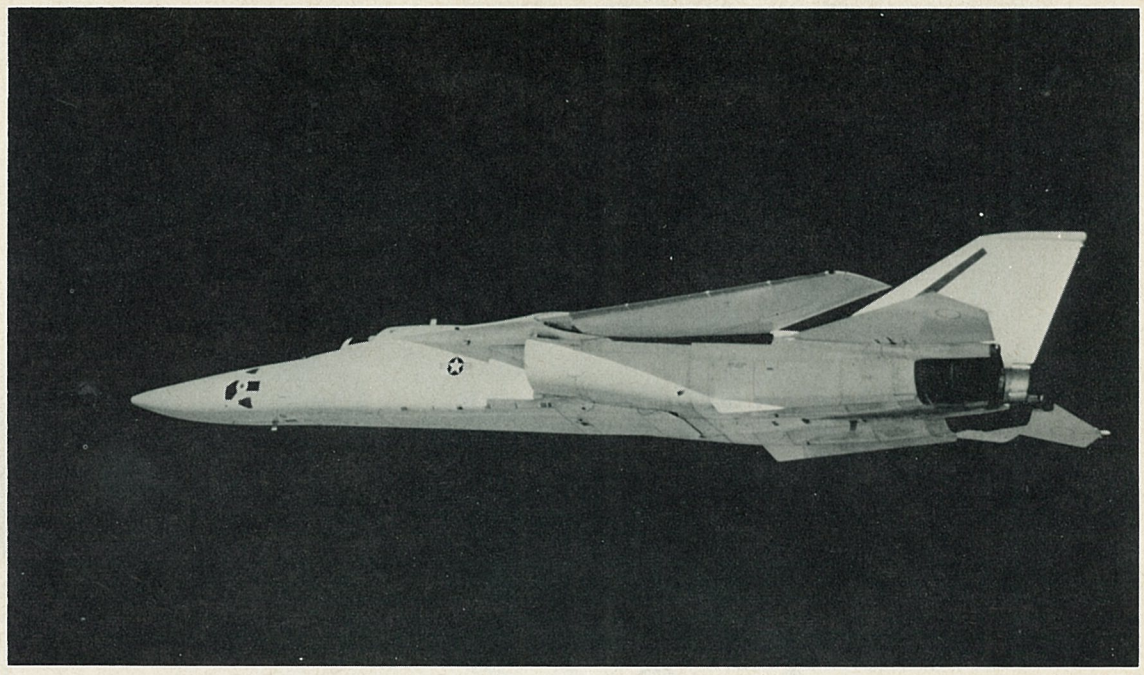
The Navy has announced that General Dynamics Corporation, Electric Boat Division, is being awarded a Letter Contract having maximum liability to the Government of $13.8 million for engineering, design, planning, and support services for the Undersea Long Range Missile System (ULMS) Submarine development. The work will be performed at Groton, Conn. This is a NavShips contract.



DELIVERY — Atmospheric Research system developed by Fort Worth operation for Air Force is checked out by, from left: W. E. Early, ARS project leader; L. G. Kummeth, program manager, Air Force Flight Dynamics Laboratory; and Lt. Col. James W. Bradbury, Headquarters, U.S. Air Force.



FIRST WATCH — USS Pensacola (LSD-38), built at Quincy Shipbuilding Division, was commissioned at Boston Naval Shipyard. Several hundred guests braved biting cold to see vessel officially inducted into the Atlantic Fleet Amphibious Force.



SUPERSONIC DASH — F-111A No. 75, painted white so that it could be more easily observed, reached speeds of over 1,000 miles an hour at 2,000 feet altitude during flights off Texas Gulf coast.

F-111A Speeds 1,000 Miles an Hour During Flights Off Texas Coast

F-111A No. 75 reached top speeds of over 1,000 miles an hour at 2,000 feet altitude last month during three flights off the Texas gulf coast.

The flights were part of routine flutter tests carried out by F-111A No. 75 and other test aircraft during recent months. Data gained was used to verify the F-111's low-altitude dash capability.

At top speeds, F-111A No. 75 traveled nearly 1,400 feet a second. At this rate, the plane would have traveled from Fort Worth to Dallas in less than two minutes.

The F-111 was subjected to dynamics pressures of 2,500 pounds a square foot at top speed. This is roughly comparable to the pressure you would feel in one hand if you tried to support a 312-pound man.

"This is probably the highest pressure ever encountered by any production aircraft and dramatizes the structural soundness of the F-111," R. W. Moller, manager of F-111 flight test, pointed out.

F-111A No. 75 was painted white so that chase planes and other aircraft could observe it more easily.

The high-speed dashes made by F-111A No. 75 might well have been the fastest ever made by an airplane at that altitude, Moller said.

Officially, a United States F-4H Phantom holds the current official low-level speed record of 902.769 miles an hour, measured over a three-kilometer course.

"We didn't have the ultra-precise measuring equipment normally used in such cases," Moller said. "Nor were there observers from the Federal Aeronautique Internationale on hand to verify such a claim.

"Still, our measurements are precise and we feel it's another significant milestone in the F-111 program."

The F-111 is capable of high-speed performance both at high altitude and on the deck. It is the only aircraft in operational status capable of sustained low-level supersonic flight.

Nation's 100th Nuclear Sub To Be Launched

This nation's 100th nuclear powered submarine will be launched June 4 only a few hundred yards from where the first atomic submarine Nautilus slid into the Thames River some 17 years ago.

The Navy's 100th A-sub is named Silversides and will be sponsored by Mrs. John H. Chafee, wife of the Secretary of the Navy.

Both Nautilus and Silversides were built by General Dynamics' Electric Boat Division which has produced more than a third of the Navy's underseas fleet.

Silversides is one of 37 Sturgeon class nuclear attack submarines which have been authorized by Congress. She is 292 feet long, displaces 4,240 tons and will carry a crew of 12 officers and 95 men. Her keel was laid Nov. 28, 1969.

The World War II Silversides was awarded the Presidential Unit Citation for sinking or damaging 221,000 tons of enemy ships and ranked fifth among wartime submarines in tonnage sunk. After the war she served as a Naval Reserve Training submarine in Chicago.

Silversides is named after a species of fish found in North American waters and is used mostly as bait for salt water fishermen.

Centaur Vehicles Seen as Expanding Capabilities of Shuttle System

Convair Aerospace Division-built Centaur high-energy launch vehicles could be used to expand the capabilities of the planned reusable Space Shuttle system, Carl F. Peters, a Convair Aerospace-SD Dept. 592-5 design specialist, told space scientists at the Eighth Space Congress last month in Cocoa Beach, Fla.

Centaur, delivered into earth orbit by the shuttle, could maneuver payloads into different orbits or send them on to deep-space missions, Peters said in a paper on "Centaur - shuttle integration and operation" presented at a launch facilities and operations session of the Space Congress.

Peters pointed out that many payloads delivered into low earth orbit by the shuttle will be destined for different orbits or deeper-space missions. Additional propulsive capability will be required to take the payloads from the shuttle orbiter's low earth orbit to their destinations.

There are four categories of missions where such additional propulsive capability would be required, Peters said. "These missions can generally be classified as 1. low to intermediate earth; 2. synchronous equatorial orbit; 3. planetary injection; and 4. lunar."

Peters said feasibility of launching Centaur from the shuttle in orbit has been studied by Convair Aerospace and North American Rockwell. He said the study shows that Centaur may be intergrated with the space shuttle system with little extra ground support equipment and with a minimal increase in operational complexity.

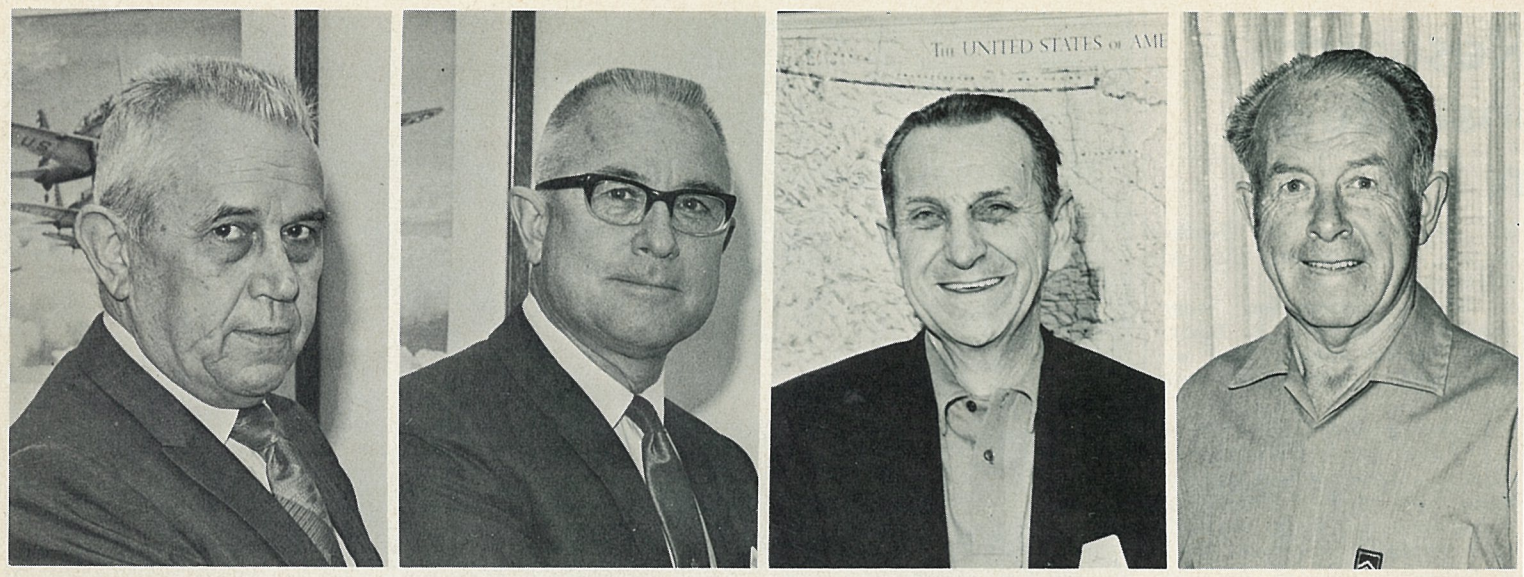
People Mobility

Personnel Transfers Within GD

(Following are recent personnel transfers within General Dynamics. In parentheses are dates when individuals joined the company.)

DORAN L. LEWIS (1965) from Electro Dynamic-Pomona operation to ED-San Diego operation as financial manager; **GARY E. HOVDE** (1962) from Convair-SD to cost estimator, ED-SD; **RICHARD J. MASON** (1968) from ED-Pomona to ED-SD as financial analyst; **PETER G. FORMANIAK** (1969) from ED-Roch. to Stromberg-Carlson as senior product designer; **AUGUST E. BITTNER** (1951) from Convair-SD to ED-SD as test engineer; **FRANK OCCHIPINTI** (1935) from ED-Roch. to senior product designer, S-C; **GEORGE O. PERKINS** (1956) from ED-Pomona to financial manager, ED-SD; **EUGENE J. PARUS** (1940) from ED-Roch. to traffic specialist, S-C; **JOSE J. MARTINEZ** (1955) from Convair-SD to ED-SD as manufacturing development engineer; **LEWIS FINCKE** (1962) from S-C Ardmore to S-C-Roch. as manager of budgets; **RICHARD A. DIDAS** (1955) from S-C-Roch. to S-C-Ardmore as senior financial analyst; **CHRISTOPHER GAGLIANO** (1970) from S-C-Roch. to S-C-Orlando as test engineer; **HAROLD G. SUITER** (1967) from Electric Boat to Corporate Headquarters as financial analyst; **L. DASSOFF** (1956) from Convair-SD to ED-SD as quality/reliability project administrator; **J. W. TAYLOR** (1956) from Convair-SD to senior quality assurance specialist, ED-SD; **LUIGI P. SHELLA** (1964) from Quincy to EB as labor budgeting estimator; **PAUL W. DRUCKER** (1952) from Quincy to EB as associate development specialist; **THOMAS J. O'ROURKE** (1967) from ED-Roch. to ED-SD as manager of production control; **WELLINGTON STANLEY** (1954) from Convair-SD to EB as assistant to operations director; **HORTON L. BAIN** (1951) from Convair-SD to material control analyst, ED-SD.

ELWOOD K. FREE (1966) from S-C to EB as facilities project engineer; **DENNIS L. BOLGER** (1968) from Convair-SD to ED-SD as material liaison representative; **NORMAN L. THALER** (1962) from ED-Roch. to principal configuration control specialist, ED-SD; **GERALD L. COOPER** (1936) from Convair-SD to material control analyst, ED-SD; **LAWSON ROLLO JR.** (1952) from Convair-SD to tool engineer, ED-SD; **WILLIAM T. HUDSON** (1952) from Convair-SD to ED-SD as material liaison representative; **GUS DEMOPOULOS** (1955) from Convair-SD to master scheduling analyst, ED-SD; **EDWARD M. LIZARRARAS** (1954) from Convair-SD to ED-SD as material control analyst; **JACK F. STRAZZ** (1950) from Convair-SD to senior buyer, ED-SD; **AUBREY F. CURRY** (1960) from Convair-SD to material control analyst, ED-SD; **VERNER A. LAURITZEN** (1956) from Convair-SD to ED-SD as logistics program coordinator; **MILTON K. DEBONT** (1952) from Convair-SD to material control analyst, ED-SD; **BLUCH W. KAHLA** (1949) from Quincy to Convair-SD as project coordinator; **E. M. SQUIRES** (1970) from Corporate Headquarters to Convair-SD as project coordinator; **ALBERT C. HERTER** (1959) from Convair-SD to senior engineering lab technician, ED-SD; **DONALD M. LEMONS** (1955) from Convair-SD to ED-SD as engineering writer.



LONG SERVICE—Convair men who received 35-year pins recently were, from left: Clarence A. Gerber, Jack Benedict, Frank Field, Joe Friel. Latter, who is on sick leave, received service pin in special presentation at his home.

Log Book Entries

Awards

CONVAIR

Employe Suggestion awards approved for week ending April 23:

J. M. Abernethy, Dept. 400-6, $68.30; A. E. Anderson, 512-3, $534.60; J. B. Anderson, 149-6, $20.25; A. F. Atwood, 401-4, $28.35; J. S. Bishop, 985-4, $33.40; H. M. Black, 401-5, $15; S. W. Botta, 985-1, $15; B. R. Crowell, 149-4, $15; R. R. Clarke, 015-0, $7.50; R. E. Culver, 143-1, $15; R. H. Crowe, 046-0, $30.70; M. K. Dale, 985-2, $15; C. L. Gross, 979-2, $25; T. F. Gurbacki, 250-3, $100; M. A. Herring, 595-5, $15; R. M. Jessop, 840-0, $125.40; R. B. Johnson, 250-3, $25; N. W. Jones, 518-0, $25; R. S. Macias, 027-0, $15; W. H. Marshall, 250-3, $40.90; J. Meza, 149-6, $20.25; R. E. Millsap, 756-0, $51.60; L. M. Moore, 511-4, $60 (four awards); I. P. Mouet, 046-0, $58.10; F. S. Ollison, 754-0, $25.55; G. L. Padgett, 754-0, $25.55; G. Pastor, 953-1, $15; L. P. Raley, 149-3, $24.75; J. B. Russell, 046-0, $74.50; J. H. Samuel, 015-0, $28.35; S. E. Smerdon, 205-0, $15; E. C. Steeger, 842-0, $15; F. Taijeron, 015-0, $7.50; M. P. Taylor, 149-3, $24.75; R. A. Taylor, 401-5, $15; A. Van Norman, 578-0, $15; G. F. Wilson, 149-8, $87.50; G. M. Young, 979-3, $15.

Employe Suggestion awards approved for week ending April 30:

H. P. Alcaraz, Dept. 046-0, $38.75 (two awards); C. F. Avina, 228-3, $15; A. N. Bowden, 195-9, $15; C. C. Brown, 131-1, $15; S. Cannizzaro, 453-0, $250; B. A. Dill, 565-1, $15; K. L. Feeley, 149-7, $54.30; G. A. Haynal, 046-0, $25; M. D. Herndon, 001-0, $7.50; L. W. Howerton, 761-0, $11.55; M. P. Lee, 210-0, $151; S. F. Lopez, 985-4, $136; P. J. Lord, 015-0, $15; E. McLeod, 148-2, $15; L. M. Moore, 511-4, $15; I. P. Mouet, 046-0, $15; R. L. Nelson, 019-0, $15; C. L. Parker, 149-8, $37.50; C. E. Roach, 761-0, $11.55; J. D. Rogers, 228-4, $77.90 (two awards); A. Sansone, 541-0, $39.90; P. Shportun, 019-0, $58.70; G. V. Simmons, 046-0, $38.75 (two awards); C. G. Skeen, 574-2, $45; B. Slot, 985-1, $15; C. R. Snow, 046-0, $70.80 (two awards); J. A. Stewart, 015-0, $28.80; S. P. Tessin, 224-1, $19.50; M. H. Thrasher, 001-0, $7.50; M. E. Tucker, 780-3, $63.60; R. G. Tucker, 979-2, $25.10; L. E. Turner, 761-0, $19.50.

Papers Presented

CONVAIR

Papers presented at AIAA sixth Aerodynamic Testing Conference, March 8, Albuquerque, N. M.

BLACK—R. L. and J. R. PICKLESIMER, Dept. 507-0, "Captive trajectory technique improvements of store separation studies in a wind tunnel."

LOWE—W. H. and D. P. Cumming, Dept. 507-0, "Experimental wall interference studies in a transonic wind tunnel."

Papers presented at AIAA Space Shuttle Conference, March 15-18, Phoenix, Ariz.:

LEE—F. R. Jr. and H. G. NULTON JR., Dept. 145-5, "Building reliability and safety into the Space Shuttle."

HARDY—W. G., Dept. 598-1, "Space Shuttle development test program."

Papers presented at WESTEC, March 8-11, Los Angeles:

ADSIT—N. R. and J. L. CHRISTIAN, Dept. 572-1, "The effect of specimen configuration on the properties of boron/aluminum."

WEISINGER — M. D., Dept. 572-2, "Fabrication of metal matrix composites."

Paper presented at American Society for Nondestructive Testing annual spring conference, March 8-12, Los Angeles:

DeLACY—T. J., Dept. 572-2, "The use of radioactive labelling to measure the reusability of coated refractory metals."

Invention Disclosures

CONVAIR

COULSON — John Jr., Dept. 491-0, Pneumatic multiple tool holder torquing vice.

STEELE — William A., Dept. 491-0, Deaerator.

SLYSH—Paul and E. J. HUJSAK, Dept. 952-5, Vacuum jacket for vessels containing cryogenic fluids.

JORDAN — Marvin K., Dept. 491-0, High lift flapped sail.

KRUMWEIDE, Gary C., Dept. 988-1, and Paul T. KANEYUKI, Dept. 400-2, Potted shell support system for electrical harnesses in cryogenic applications.

Retirements

CONVAIR

BAUMANN—Robert G., Dept. 491-0. Seniority date May 8, 1963, retired April 30.

BERBERICH — Frank J. Jr., Dept. 567-0. Seniority date Oct. 10, 1963, retired April 20.

BLAUMEYER—John W., Dept. 761-0. Seniority date Feb. 7, 1940, retired April 30.

CONNOR—Jerry C., Dept. 400-0. Seniority date Jan. 30, 1941, retired April 2.

DEWEY—Gael A., Dept. 031-0. Seniority date Dec. 17, 1935, retired April 30.

ENGELHARDT — William F., Dept. 019-0. Seniority date Oct. 2, 1953, retired April 30.

GAHLBECK—Elmer T., Dept. 046-0. Seniority date Jan. 19, 1932, retired April 16.

GARTEN — Gladys M., Dept. 146-3. Seniority date Jan. 17, 1947, retired April 30.

GIBSON—Louis M., Dept. 046-0. Seniority date July 13, 1936, retired April 30.

HUCKELL — Robert W., Dept. 015-0. Seniority date Sept. 14, 1937, retired April 16.

HUKE—Joseph E., Dept. 002-0. Seniority date Nov. 18, 1947, retired April 30.

KNOFF — Kathryn W., Dept. 524-5. Seniority date Aug. 6, 1958, retired March 26.

KRUSCHE — Hugon S., Dept. 587-0. Seniority date Oct. 9, 1968, retired April 30.

LOGAN—Vern H., Dept. 015-0. Seniority date Oct. 6, 1941, retired April 30.

MARCHALL—William H., Dept. 250-3. Seniority date Oct. 2, 1947, retired April 30.

MENEKE — Kenneth E., Dept. 951-6. Seniority date July 5, 1961, retired Jan. 31.

MURPHY—Helen T., Dept. 053-0. Seniority date Sept. 16, 1960, retired April 4.

PECK—Alice N., Dept. 223-3. Seniority date Oct. 19, 1950, retired April 30.

RITTER—Arnold P., Dept. 574-3. Seniority date Oct. 14, 1963, retired March 27.

ROMERO—Ides J., Dept. 142-1. Seniority date March 19, 1956, retired April 30.

SWANSON—Wesley A., Dept. 001-0. Seniority date July 8, 1941, retired April 30.

TOOMBS—Ernest F., Dept. 223-3. Seniority date Sept. 19, 1947, retired April 30.

VANCE—Ketha C., Dept. 105-1. Seniority date Sept. 11, 1947, retired April 5.

WALDEN—Leta R., Dept. 193-3. Seniority date March 5, 1953, retired Feb. 23.

WESTERN—Owen C., Dept. 046-0. Seniority date Feb. 18, 1941, retired April 30.

ELECTRO DYNAMIC

CATTERALL—John H., Dept. 714. Seniority date March 6, 1952, retired April 30.

LAFFOON—Hester E., Dept. 444. Seniority date Aug. 24, 1959, retired April 30.

SMITHSON—Albert E., Dept. 712. Seniority date Dec. 11, 1961, retired April 30.

Personals

CONVAIR

I would like to express my appreciation for the contributions and sympathy shown by the personnel of Dept. 518-0 (graphics) upon the death of my husband, Al E. Dent. Thank you for your kind words and deeds.

Mrs. Al E. Dent

* * *

My sincerest thanks to the many Convair friends for the many acts of kindness and expressions of sympathy during by bereavement at the loss of my husband, Philip.

Marian E. Dyer

* * *

I would like to express my gratitude for all the kind offers of help and sympathy extended to me following the loss of my mother.

Lois J. Nemshack, Dept. 518-0

* * *

My sincerest thanks to all my friends and co-workers for the party, most appreciated and truly unexpected gift, and the many good wishes upon my recent retirement.

Wes Swanson, Dept. 001

Births

CONVAIR

ALDRIDGE—Daughter Marta Ada, 6 lbs. 6 ozs., born April 23, to Mivia and Don (Dept. 583-0) Aldridge.

Service Emblems

CONVAIR

Service emblems due between May 1 and May 15.

THIRTY-FIVE YEAR: Dept. 250, Nick F. LaGamma.

THIRTY-YEAR: Dept. 049, A. C. Oehler; 149, R. H. Brent, L. C. Stuckey Jr.; 204, W. S. Nader; 221, K. S. Kelly; 222, L. H. Allen; 401, A. J. Martino; 511, W. A. Heitzman; 732, G. E. Mayer, R. W. McDaniel; 840, J. N. McPheeters.

TWENTY-FIVE YEAR: Dept. 016, O. G. Anderson; 027, B. T. Medearis, H. J. Wallendorff; 761, L. W. Howerton.

TWENTY-YEAR: Dept. 027, Jennie M. Cook; 045, H. T. Chambers; 046, J. O. Lovell; 130, G. C. Brown, D. R. Frisk; 142, B. Scott Jr., F. Wallace Jr.; 143, Glynn J. Hendrix; 221, R. Badilla, Doris A. McNeese, Phyllis G. Perez; 223, D. J. Olson, C. M. White; 250, J. C. Sanchez; 400, F. E. Cooper; 401, A. C. Garegnani; 840, C. W. Glasgow.

FIFTEEN-YEAR: Dept. 016, Virginia F. Roslee; 046, R. F. Haight, R. L. McDonald; 131, R. C. Morrison, E. A. Rohde; 141, L. A. Milton; 142, J. Brame, J. L. Koskinen, W. J. Steffen; 148, Ruth E. Brown; 193, Nancy J. Burgess; 202, W. C. Hetzler; 221, R. L. Dixon, C. R. Jones, J. P. Maher; 250, E. Creccy, P. W. Deaett, M. C. Escareno, J. F. Hunter Jr., R. P. Martinez, A. L. Weaver; 401, C. J. Reich, R. A. Zwolinski; 491, E. L. Christian; 508, M. F. Nicodemus Jr.; 524, J. H. Love, Mildred G. Ramstad; 563, J. Handrus; 575, Veda M. Schwoerke; 578, B. P. Wheat; 584, R. I. Cross; 756, W. H. Church; 761, C. Varela; 810, E. E. Hansel; 840, Anne Corral; 850, F. R. Lucas; 953, T. S. Kianicza, R. F. Maxey.

TEN-YEAR: Dept. 046, Helen M. Beatty; 105, P. S. Bazler Jr.; 141, T. W. Reese; 149, W. W. Lacy; 191, Emma M. Wosnak; 195, C. F. Marshall; 198, R. D. Springer; 221, Jane A. Shinkle; 250, R. E. Frazier, W. C. White; 407, T. Artiaga; 515, Ruth L. Crosser; 524, Lunia W. Knitter; 526, Pearl E. Ludvigson, Marie G. Walsh; 731, R. F. Reilly; 802, E. R. Cornish Jr.; 840, W. J. Borden; 988, A. S. Keevil.

ELECTRO DYNAMIC

TWENTY-YEAR: Dept. 813, L. N. Lawhead.

FIFTEEN-YEAR: Dept. 511, Lois M. Corbett; 636, J. N. Clarke; 637, J. R. Taber; 922, D. V. Hill.

TEN-YEAR: Dept. 773, D. H. Blakley; 811, T. G. Hame.

Rider-Driver

CONVAIR

RIDE WANTED — From El Cajon (near 3rd and Madison) to Lindbergh Field plant, 3:30 p.m. to midnight shift. Call Mary Arestead, ext. 1208 LF or (home) 447-1240.

RIDE WANTED—From 71st Street and El Cajon Boulevard to Lindbergh Field plant, 7:30 a.m. to 4 p.m. shift. Call Mae Bone, ext. 3564 KM or (home) 466-4301.

"RACE DAY" TICKETS AVAILABLE MAY 25

Tickets for the Convair Management Association-sponsored "day at the thoroughbred races" at Caliente Turf Club on June 13 will be on sale through association boosters beginning May 25. Cost will be $3.75 and will include a deluxe buffet luncheon.

Be sure to use the ZIP code when addressing mail. It speeds up delivery!

General Dynamics News

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San Diego editorial offices:

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Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P. O. Box 1950, San Diego 92112.

Wise Owl Club Gets New Member

Augustine Lorenzo, a lathe machinist in Convair Aerospace-SD's Dept. 731-0, has been awarded a membership in the Wise Owl Club of America for having his eyesight saved through wearing of safety glasses.

Lorenzo was removing an air hose that had become caught between a floor grating and machine chip guard March 11 when the hose coupling separated and hit the right lens of his safety glasses. The blow broke the glasses frames and knocked out the lens but Lorenzo suffered only a bruise around the eye.

Bob Franklin, Dept. 731-0 general foreman, has presented Lorenzo with his Wise Owl Club membership certificate and pin.

Care of Skins Re-emphasized

As part of the EZduzit program over 400 Convair Aerospace-SD DC-10 assemblers and supervisors have completed an 8-hour retraining course placing special emphasis on the exterior skin surface quality.

Classes were part of a program to reacquaint DC-10 personnel with proper methods of drilling, countersinking, riveting and milling. The program is aimed at stressing the importance of care, treatment and protection of the DC-10 premium skins during the assembly stages of production and to reiterate the need to deliver perfect, mirror-finish skins.

As assemblers are transferred into the DC-10 program from other areas and new employes are hired, similar training classes range from 8 hours to 5 weeks, depending upon level of skill.

"The present rehiring program in the assembly department to recover from the Aerfer skin panel delay and meet increased delivery rates up to five ship-sets per month this year requires a constant education and re-education program to assure good quality," said Jack Hurt, DC-10 program manager.

EZ DUZIT

"Our recent re-emphasis on EZduzit," he continued, "is to remind people of our quality goals and ensure that new people coming into Convair know how to help achieve it."

Entering Bomb Contest 'Cold,' FB-111 Chalks Excellent Score

(Continued from Page 1)

land, the two bombers entered the bombing stream and flew against SAC B-52s and RAF Vulcans.

After making one high-altitude bomb run and three low-level runs, the FB-111s landed at RAF Marham—9 hours and 55 minutes after the takeoff from Pease.

"Despite the long flight and the demanding bombing mission, both FB-111s were in virtually perfect maintenance condition when they landed at Marham," Colonel Greene said. "Both planes could have easily been refueled and used on another mission.

"This fact impressed RAF people, as did the FB-111's overall performance in the competition."

As previously announced, the FB-111s were non-competitive entries. This was because of the FB-111's "advanced avionics systems and also because it is not equipped for celestial navigation, which was an integral phase of the competition," SAC announced.

Still, the Carswell-based FB-111 "unofficially" finished a close second in bombing, being nosed out by a Vulcan bomber.

All other entries had practiced over the bombing route for at least a month before the competition.

Takes "Work" Home

Novel Gift and Anecdote Mark Retirements

The biggest and heaviest retirement gift in history, and an unusual anecdote concerning Reuben H. Fleet, founder of Consolidated Aircraft, were involved in two recent retirements at San Diego.

Wes Swanson, Convair Aerospace Dept. 001, with 30 years of service, "took home" a lathe with which he had worked for nearly a quarter century. (Associates financed its purchase through the salvage yard!)

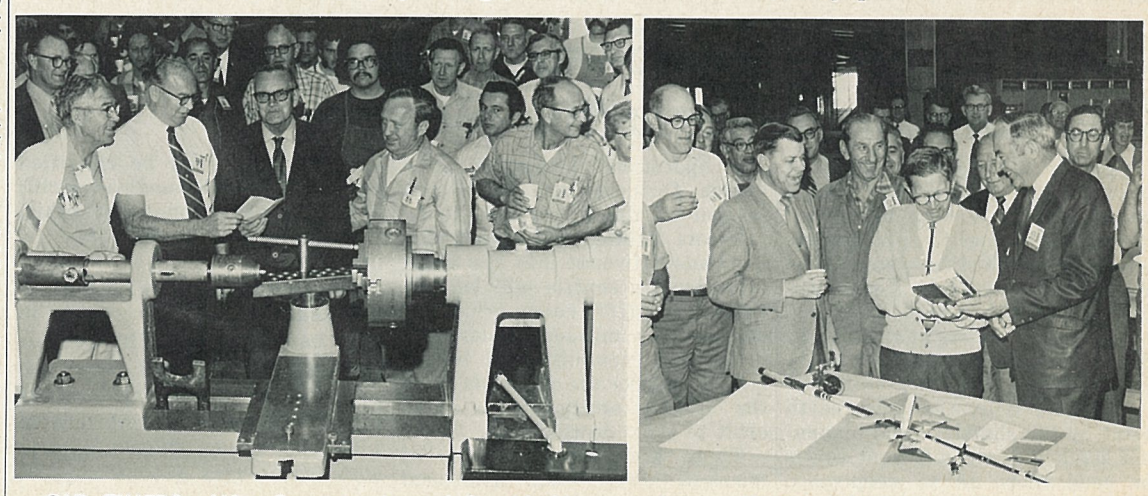
Gael A. Dewey, Dept. 031, summoned for a job in the wing department of Consolidated 35 years ago, was informed that the position had been filled. Disgruntled, he was leaving the employment office when he bumped into an individual he assumed was also seeking employment.

"Don't apply," he advised the stranger. "You can't trust 'em."

The "stranger" was Reuben Fleet and after hearing the story Fleet personally hired him and added "As long as you want a job here you've got it."

His enormous parting gift will be no problem to Swanson.

"I'm starting a body repair shop and this is my first piece of equipment."



OLD TIMERS—Wes Swanson is at left with his record-size gift. At right is Gael Dewey who recalls how he was hired by Reuben Fleet.

Small Business Meeting Planned As a 'Catalyst'

Representatives from Convair Aerospace-SD and Electro Dynamic-SD will participate in a special Small Business Week meeting May 21 sponsored by the San Diego Chamber of Commerce, the local Small Business Administration office, and the local chapter of the Patent Law Association. It will be designed to "provide a catalyst between inventors and marketing people."

V. O. Olson and T. R. Daugherty, small business administrators for Convair Aerospace-SD and Electro Dynamic-SD, respectively, are serving on a subcommittee to plan the event.

"Convair Aerospace-SD utilized the services of 3,187 small business suppliers during 1970," Olson said. "This represented 65 per cent of all supplier firms with which we placed business and 43 per cent of all subcontract dollars awarded during the year."

Team Established To Check on DC-10

A new DC-10 production team has been established by Convair Aerospace-SD to help insure that contract cost, schedule, and quality commitments are met.

M. C. Curtis, vice president and general manager, will be chairman of the production team, which will meet each Tuesday and Thursday. J. M. Adamson, director of operations, will be alternate chairman.

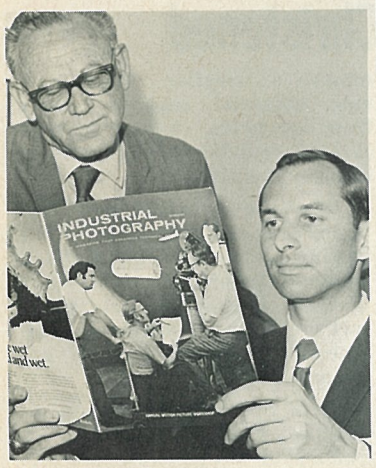
Members include C. F. Blair, performance improvement and plant modernization; W. R. Bruce, program plans and control; V. F. Cernuto, production control; R. G. Daly, factory; E. H. Damarus, production engineering; R. H. Gilliland, Lindbergh Field plant reliability control; B. J. Neal, finance; J. B. Hurt, DC-10 program; J. M. Rogers, material financial and program control; W. E. Wise, plant services; and M. R. Yale, DC-10 engineering.

The team will identify adverse conditions, determine what corrective measures are to be taken, establish priorities and completion schedules, and assign responsibility for key action items.

TYPEWRITER SALE SET FOR MAY 22

A number of Olympia standard typewriters will be on sale May 22 in the materials salvage yard at the Lindbergh Field plant.

Ray Lange, material sales supervisor, said the machines will sell at a fixed price with no bids required.



COVER COVERAGE — H. R. Kennedy, left, manager of graphic services, and J. F. Thompson, director of engineering administration and services, look over March issue of Industrial Photography magazine that included color cover and feature story on Convair Aerospace-SD motion pictures section. Story involved using static models and moving cameras to film simulated operation of Research and Applications Module and Space Shuttle orbiter in space. In cover photo, from left, are Bill McClure, Bob Montague, Bill Carter, and Chuck Guy.

CONVENTION PLANNING — Convair-Don Diego Ski Club hosted Far West Ski Association convention last weekend. Snapped at planning session, from left, were Julianna Bartek, Harry Eastman, Mary Carol Eastman, Judy Pike, Joe Harris, Bob Vogel, Sandy Yoshihara, Helen Navoy, Bruce Barr, and Barbara Reed.

Convair Ski Club Hosts 1971 Western Convention

About 200 members of the Convair-Don Diego Ski Club helped plan and hosted the 39th annual Far West Ski Association's annual meeting attended by 500 top skiers from the western U.S. last weekend in San Diego.

Joe Harris, water-ski commissioner for the Convair club, was general chairman for the convention. Bob Vogel, club president, Harry Eastman, snow-ski commissioner, and other members of the Convair club served on 32 convention committees.

Among activities for the visiting snow skiers were water ski sessions Saturday and Sunday on Mission Bay with instructors and boats provided by the Convair-Don Diego club.

Recreational activities included a margarita party and Mission Bay cruise hosted by the Convair-Don Diego club on the Bahia Belle sternwheel steamer, luncheon and fashion shows, a "fiesta" awards banquet, a dinner dance, a harbor cruise, and trips to Tijuana, Sea World, and the San Diego Zoo.

The Convair club, open to General Dynamics families only, provides water and snow ski activities on a year-round basis.

Summer mid-week water skiing begins this evening (May 12) with two-boats available after 5 p.m. from the Crown Point landing on a "first come — first served" basis.

International Jetliner 'Deal' Brings Ham Sale Through CRA

An international bartering "deal" that included sale of jetliners to two Yugoslavian airlines, Inex-Adria and JAT, is resulting in the sale of lean Yugoslav-canned hams to Convair Aerospace-SD and Electro Dynamic-SD families through CRA.

ATTRACTION — Crystal Richards, Convair Aerospace-SD Dept. 101-6 leadlady, looks over canned Yugoslav hams to be sold through CRA.

George Schmiedel, supervisor of recreation, said the 10 lb. 8 oz. "Flight" brand hams are being sold at $10 each at CRA Clubhouse at Kearny Mesa from 3:30 to 9 p.m. weekdays and 11 a.m. to 4 p.m. Saturdays and Sundays.

"The hams are solid with no fat or other waste and need only be heated through and served," he said.

Schmiedel said the hams were obtained by Douglas in a complex international exchange that involved more than $9 million in East European commodities.

Procurement personnel in charge of "ham sales" to Douglas employes in Long Beach agreed to provide the same purchasing arrangement for General Dynamics employes through CRA because the San Diego operation produces fuselages for McDonnell Douglas DC-10 tri-jetliners.

CRA Calendar

(For information on CRA activities call CRA headquarters, ext. 1111 KM. Deadline for next issue of GD/NEWS is May 18. Call ext. 1071 LF or 3322 KM. All meetings are held in CRA Clubhouse unless otherwise noted.)

★ ★ ★

ADVENTURERS—Meet 7:30 p.m., May 19.

BADMINTON—Play 7-10 p.m., Mondays, Federal Bldg., Balboa Park.

BICYCLE CLUB—Call Bob Williams, ext. 1626 KM for information.

BRIDGE—Duplicate bridge sessions, 7:30 p.m. each Friday.

CAMERA CLUB—Meet 7:30 p.m., May 16.

CERAMICS—Meet 9 a.m.-noon and 7-10 p.m., Tuesdays and Thursdays.

CHORUS—Rehearsals 7:30 p.m. each Monday.

COUNTRY & WESTERN MUSIC — Meet 7:30 p.m. each Thursday.

DELTA DIVERS—Meet 7:30 p.m. tonight (May 12).

FENCING — Workouts and instruction 7:30 p.m., Fridays. YWCA, 10th & C Sts.

FISHING CLUB—Potluck 6:30 p.m., meeting 7:30, May 18, Gillespie Field Clubhouse.

HEALTH CLUB—Open 9:30 a.m.-10 p.m., Monday through Thursday; 9:30 a.m.-9 p.m., Fridays; 9 a.m.-noon, Saturdays; "Women only" weekdays, 9:30-11 a.m.

ICE SKATING—GD family skate night 6:15-7:45 p.m. each Thursday, House of Ice, Interstate 8 and Lake Murray Blvd. Flat rate fee $1 (includes skates).

MINIATURE RAILROAD—Operating sessions Saturdays, Sundays and holidays, CRA Missile Park.

MODEL HO RAILROAD—Work sessions 7 p.m. each Tuesday, CRA Missile Park.

RADIO CLUB—Meeting 7:30 p.m., May 20.

RIDING CLUB—Meeting 7:30 p.m. tonight (May 12).

RIFLE CLUB — Senior shoot 7 p.m., May 12. Junior shoot 9 a.m., May 15. Gillespie Field Range.

ROCKHOUNDS — Meeting 7:30 p.m., May 12.

SCULPTURE—Workshop sessions 7:30-10:30 p.m., Mondays.

SKI CLUB — Wednesday night water skiing, 5 p.m. at Crown Point landing.

SPORTS CAR CLUB — Meeting 7:30 p.m. tonight (May 12).

SQUARE DANCE — Dance 8-10 p.m. each Thursday.

SWIMMING—Family swim night 7-9 p.m., May 15, Mission Beach Plunge. Tickets at employe benefits, 5 cents.

TOASTMASTERS—Convair Toastmasters meet 4:30 p.m. each Wednesday. Dynamic Toastmasters meet 5:30 p.m., Thursdays.

TOURS—European tour, Sept. 18-Oct. 9. Travel meeting May 13, 7:30 p.m.

WIVES CLUB—Knotts Berry Farm & Hollywood bus tour, May 26.

Plate With Sailing Ship Scene Judged Best in Ceramic Show

Mrs. Loyd Walker's first-place entry in the underglaze decoration division also won the "Best of Show" award plaque at CRA Ceramic Club's city-wide show for amateur ceramists April 30 and May 1 in the CRA Clubhouse.

It was a plate with a sailing ship design that had been mounted to serve as a wall decoration. Club representatives said it utilized underglazes in a manner unique to ceramists—more like those used by water color artists.

First-place ribbon winners in other divisions were Mrs. Glenn Worley, clay decorations; Mrs. Derek Toal, unfired stains; Mrs. John D. Hash, controlled combinations; and Mrs. Helen Cowell, control glazes.

A club entry in the "boo boo" classification also garnered a blue ribbon. It was a teapot on which the lid had been glazed to the pot and which carried the inscription "to be filled and emptied thru the spout."

Mrs. Claude W. Bradford, CRA Ceramic Club president, said the event was a financial success.

BEST OF SHOW — Ceramic plate that doubles as wall decoration won "Best of Show" plaque for Mrs. Loyd Walker at recent Ceramic Club show.

Miniature Railroad Resumes Operations

The Kearny Mesa and Pacific miniature railroad at Missile Park, after six months off for the winter and refurbishment, began its seventh summer of weekend and holiday operation last weekend. It soon will log its 200,000th passenger mile.

Keith Bennett, president of the CRA Miniature Railroad Club which maintains and operates the attraction on a half-mile track around the park, said the train has been refurbished and repainted from the locomotive to the caboose.

Other officers of the club include Al Kent, commissioner; G. G. Shipman, vice president; and Ed Mehrlust, secretary-treasurer.

SCHNEIDER AGAIN PISTOL CLUB WINNER

Red Schneider won both .22 police course master class and .22 short national course firing events for the second consecutive time at CRA Pistol Club's April 25 meet on the San Diego police range. Bill Dittmann was first among expert-class shooters in the .22 police course competition.

CRA Sponsors Europe Tour

CRA is sponsoring a 22-day European tour departing from San Diego Sept. 18 and returning Oct. 9. The six-country tour will include visits to London, Paris, Switzerland, Germany, Amsterdam, and Brussels.

Cost of the tour is $598 and includes jet air travel, hotel accommodations, guided tours and sightseeing, many meals, baggage handling and tips.

Del Dimmitt, newly named travel commissioner, invites all General Dynamics employes who are interested in this or similar tours to contact him at ext. 1797 LF. Arrangements for tour programs to Hawaii, Mexico, Tahiti and the Bahamas with an air-sea Caribbean curise may be made to fit vacation needs.

There will be a 7:30 p.m. travel meeting tomorrow (May 13) in CRA Clubhouse. Full details will be presented on all travel programs available.

Employe Suggestion Paves Way For River Ride on Delta Queen

Richard E. Reynolds' wife, Bertha, is going to get a long desired five-day vacation trip down the Ohio and Mississippi Rivers aboard the Delta Queen next month.

Reynolds, a vendor requirements man in Convair Aerospace-SD's Dept. 842-0, recently received a $1,083.30 Employe Suggestion award check that will save the San Diego operation 10 times that amount in the next year by reducing the number of drawing prints distributed with procurement authorizations.

"We had already made advance reservations on the Delta Queen for the trip from Cincinnati to St. Louis during our vacation," Reynolds said. "This will cinch it!"

Bertha, a Dept. 146-3 data center clerk, will dine aboard the "Queen" in dresses worn by her husband's great grandmother during the years from 1865 to 1875.

Reynolds will film the cruise in color to add to films taken in previous years in Canada, Mexico, and Guatemala and during a trip down the Colorado River in a rubber raft.

HAPPY SURPRISE—Richard Reynolds, vendor requirements man in Convair Aerospace-SD's Dept. 842-0, receives $1,083.30 Employe Suggestion award check and certificate from Frank Robbins, left, manager of material operations. Looking on are Ed Cox, supervisor of cataloging, and A. B. Mercer, group supervisor.

David Lewis Warns Of Tight Defense $

(Continued from Page 1)

management structure to permit a better and quicker reaction to opportunities. While there will be fewer new major programs starting in the near future, we have established firm guidelines which say we will bid only if we have a significant technical edge, or a real cost advantage—and if we have sufficient resources to stay in the game.

We have the financial strength and technical capability to compete for any new program and—while we are anticipating changes in our defense/space work—we are and expect to be a major supplier of aerospace, marine, weapons, and space systems to our Government. We are in this business to stay!

With respect to our commercial products, I would like to simply point our that, while General Dynamics has been known principally as a supplier of major weapons and space systems, the Company has had, for a considerable period of time, a very solid and profitable base of commercial activities, as exemplified by our Resources and Telecommunications groups.

You read a great deal in the newspapers these days about the need for channeling defense industry technology into commercial and socio-economic programs. This has, so far, been largely unsuccessful. Also, I am sure you have read about the attempts of other major aerospace firms to penetrate commercial non-aerospace markets to lessen the impact of the declining Government business on their sales and earnings.

I think it is most significant to note that General Dynamics' commercial business last year amounted to about $400 million. On the basis of commercial sales alone, General Dynamics would still be the 250th largest industrial firm in the United States. We already have a profitable commercial base and it is our job to expand on this base and increase its profitability.

At the same time we are taking these steps to improve our ability to capture Government and commercial contracts, we are strengthening our management team both at the Corporate and divisional levels. We are adding new talent, such as Gorden MacDonald, our new vice president for finance, and we are looking for other key executives with strength in operations and corporate planning.

Furthermore, we are changing the organizational structure of our Board of Directors to ensure that we take advantage of the experience and capability of these fine people. Beginning last October, the Executive Committee was reinstituted after a period of more than four years. This committee has already proven to be most helpful to management. At our organizational meeting we plan to establish for the first time a Finance Committee with several key subcommittees. We except that this committee will also be of great help in the months ahead. In other words, we expect that your Directors will really be a working Board.

We are instituting a system whereby the Corporate staff will have much greater responsibility in the management of our divisions and subsidiaries. We are improving and shortening the lines of communications between headquarters and our operating units, and our move to St. Louis will greatly enhance our ability to move quickly to and from our plant sites and important market areas. And, finally, we are beginning a series of in-depth reviews of our divisions' and subsidiaries' internal organizations and personnel to be sure we have the best people in the right jobs.

A good example of this is the recently announced reorganization of our Convair Aerospace Division. There, we consolidated the management of the Fort Worth and San Diego operations—by forming a single engineering department and by establishing new and fully integrated sales and planning departments. We also made significant key personnel changes to better apply the talents and experience of our people to the jobs at hand.

Let me now turn to the first quarter of 1971 and tell you about some of the things which have happened since the end of 1970.

I am pleased to announce that the company will report a profit for this quarter. On sales of $456,000,000 our earnings were $4,553,000 or $0.43 per common share. There is no reason now to expect that it will be necessary to provide additional large reserves for losses as we did at year end in 1970. Hence 1971, unlike 1970, should be a profitable year.

Our sales are down when compared to this time last year, and we expect this. They are down primarily because of a slowdown in the rate of delivery of F-111 aircraft.

Last month the Air Force announced that it was reducing its buy of F-111s, the most advanced model, by 12 aircraft, because of Defense Department budget difficulties. Our people are working very hard and exploring every avenue to obtain additional follow-on F-111 business, but right now we simply do not know whether we will be successful.

While the long-range sales potential of some of our programs is uncertain, there are compensating areas that look highly promising. In January we received a contract for $428 million to build seven nuclear attack submarines of a new class, with the first to be delivered in mid-1975. The Navy's initial order for these new submarines is less than half of their total planned requirement; so we can reasonably expect to receive follow-on orders at a later date.

Extremely important to our submarine business is the contract we received some time ago to study an entirely new ballistic missile submarine system — the ULMS or Undersea Long-Range Missile System. We believe our Electric Boat Division has done an outstanding job on this study—so good in fact that we are hoping and expecting in the very near future the Navy will award us a new and major contract to proceed with the design of an ULMS system. Should we receive this contract—and I believe we will—General Dynamics will be responsible for the engineering and design of the entire system except for the missiles and associated equipment.

At our Quincy Shipbuilding Division, we are continuing to deliver ships to the U.S. Navy, and we are seeking additional orders to replace that construction work as these Navy ships are delivered. Perhaps the most promising prospect we are currently pursuing is an order for huge liquified natural gas tankers in which several of the large natural gas companies have shown an interest.

It is too early to tell whether we have really turned the corner at Quincy, but we have improved our productivity there and we have not identified any additional cost overruns since our year-end report. We are scheduled to complete the Navy and commercial ships now on order by the end of 1972. Therefore, it is most important that we obtain new orders in the near future for ships that can be produced profitably.

Our space launch vehicle programs—Atlas and Centaur— continue to furnish a stable backlog of profitable business. Just this month NASA announced that we had been awarded two new contracts for space systems—one, to build six improved versions of our Centaur high energy upper stage boosters—and the other to begin preliminary design of a versatile space laboratory called the Research and Applications Module or RAM. The latter could well be the beginning of an important long-term program.

Our Resources and Telecommunications groups contributed substantially to our earnings during this quarter as they have done in the past; and because we are enthusiastic about this growing sector of our business, we have made substantial capital investments in these companies to permit us to penetrate new and larger markets. But the rate of growth of our commercial sales will depend in large measure on the basic strength and vitality of our nation's economy.

To sum it up then—you can see that our Company is in a period of consolidation. Some of our lines of business are experiencing a reduction in volume, while others are growing—certain product lines are reaching maturity, but new ones are being developed to take their place.

The thing to remember is that our situation is not static—but very dynamic.

We expect to improve our planning to the degree that we can act and not simply react to changing conditions. In summary:

- We intend to choose our opportunities carefully.
- We intend to organize more efficiently.
- We intend to consolidate the strengths of our individual divisions to more effectively work as one company.

All these things we hope to accomplish within a framework of:

- dedicated and skilled employees
- civic responsibility
- and the knowledge that we must be profitable.

As we said in our letter to the shareowners.

"We believe we have a good Company and the steps taken in 1970 should make us stronger, more competitive and better prepared to meet the challenges of this future."

CHAIRMAN REPORTS — Shown on podium at Pomona facility is David S. Lewis, Chairman of the Board of General Dynamics.

TEST FLEET—Four DC-10s with 20-foot-wide Convair Aerospace-SD-built fuselages that are being tested for FAA certification are shown on the flight line at Douglas Aircraft Co. plant.

Champagne Flows at Quincy As Mount Vernon Christened

In a truly "smashing" performance, Mount Vernon (LSD-39) was christened April 17 at Quincy Shipbuilding Division by Mrs. Barry J. Shillito, wife of the Assistant Secretary of Defense (installations and logistics). A crowd of 8,400 turned out for the multiple celebration, which also included tours of the nearly-completed Dixon (AS-37) and visits to the yard's steel working areas.

Mrs. Shillito, who "practiced my swing for weeks at home," entered christening's hall of fame with her bottle-breaking effort, which sent so much spray flying that the crowd was brought to its feet in a roar of approval.

Delivering the principal address, Secretary Shillito termed the ship "an important part of the Navy/Marine Corps team, one of the most versatile tools of freedom in the world . . . with the ability to meet any emergency from showing the flag to participating in an invasion."

Paying tribute to the men who built and will serve on Mount Vernon, the third of four such 562-foot vessels to be built at Quincy, Secy. Shillito stressed the ship's versatility. He cited her ability to launch helicopters, amphibious vehicles and landing craft; serve as a dry dock for repairs of smaller vessels; provide essential logistic support from her holds, and assist in the care of wounded through her own medical facilities.

"But the greatest role of this ship," he said, "is that of insuring peace that envisions a community of nations, free to govern themselves internally, yet mutually respecting and cooperating with each other externally."

David S. Lewis, Chairman and Chief Executive Officer of General Dynamics, attended the ceremony. He said in his remarks that the Navy has been the best customer since General Dynamics acquired the yard in 1964. "We hope that we will be able to continue this fine relationship," he added, "and also build more commercial ships, such as the Lykes Seabees, for both peacetime and military sealift purposes."

During his introduction of guests, Quincy General Manager Lloyd Bergeson noted that the last five Navy ships delivered by the Quincy yard had received "high praise" from the U.S. Navy Official Trial Board. He promised Navy officials that Mount Vernon will continue this record of excellence.

NEWS Editions Will Be Merged Into New Publication Next Month

Effective with the next publication date, June 9, all local editions of General Dynamics NEWS will be merged into one basic newspaper, renamed General Dynamics WORLD.

The WORLD will carry wider coverage of important news from all divisions and subsidiaries but also will provide space for news of purely local interest.

Involved are NEWS editions published at San Diego and Pomona, Calif.; Fort Worth, Texas; Rochester, New York; Quincy, Mass., and Groton, Conn.

The move is being taken to achieve greater cohesion among divisions and subsidiaries, to expand awareness of Corporate goals and activities and to improve publishing efficiency.

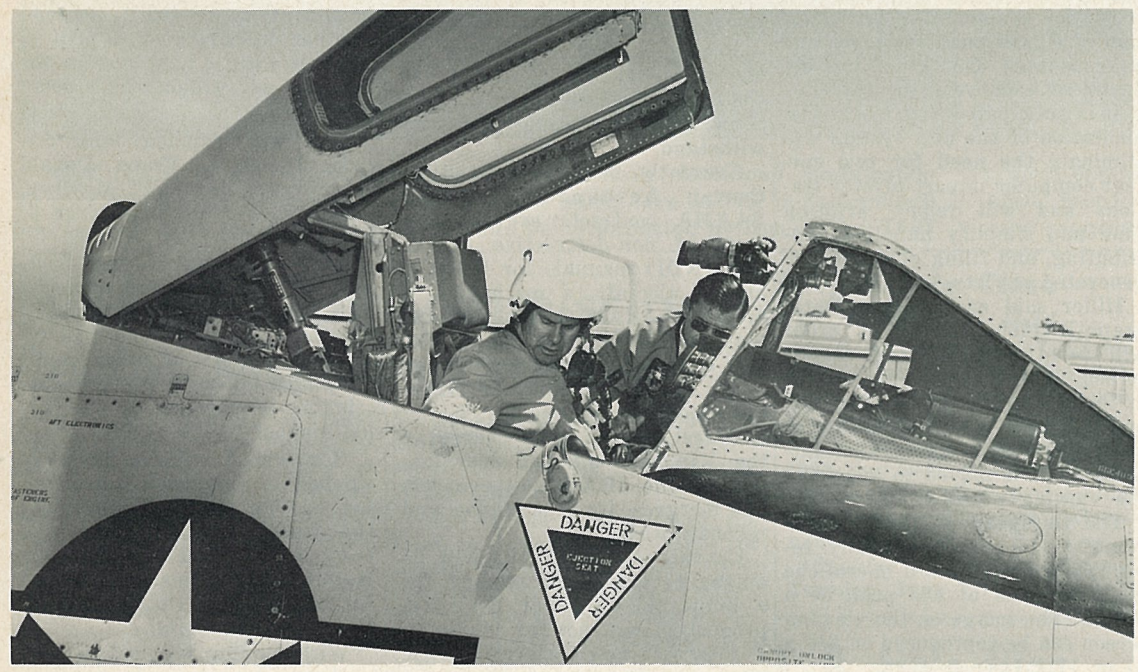
The WORLD will be centrally edited and will appear every other week simultaneously at major locations.

GENERAL DYNAMICS

SAN DIEGO EDITION

NEWS

Vol. 24, No. 11 PUBLISHED BY GENERAL DYNAMICS CORPORATION 52 Wednesday, May 26, 1971



PLANE PREPARATION—Convair Aerospace - SD engineering test pilots Howard Auten, in cockpit, and E. R. Emerson check F-106 fighter-interceptor to be used in extensive structural integrity and clear-top canopy flight test programs.

F-102, F-106 Studies To Lengthen 'Life'

Convair Aerospace Division's San Diego operation has started work on a multi-million-dollar analytical, flight test, and structural fatigue test program that is expected to enable the Air Force and Air National Guard to increase the certified "life" of F-102 and F-106 fighter-interceptor and trainer aircraft and extend their operational use.

C. S. Brandt, F-102 and F-106 program manager, and B. F. Ferguson, deputy program manager, said the comprehensive test program will be conducted under the direction of the San Antonio Air Materiel Area (SAAMA) and will run through mid-1974.

An F-106 test aircraft recently was disassembled, instrumented with strain gauges for determining flight stress levels on structural members, and reassembled in preparation for its first ASIP (Aircraft Structural Integrity Program) test flight late in June.

Three Convair Aerospace engineering test pilots—E. R. Emerson, Lee White, and Howard Auten—will fly the F-106A.

Two F-102A fighter-interceptors are scheduled for delivery later this year for use in cycle fatigue tests.

Brandt said the flight loads survey with the F-106A, which will subject it to higher than normal stress, will help provide the basis for analytical studies. SAAMA also has correlated data from pilot usage forms. The University of Dayton Research Institute under Convair Aerospace subcontract is obtaining data from flight recorders in eight F-106As in the field, and interviews have been held with pilots in eight Air Force and Air National Guard units for input data.

Fatigue testing, scheduled to begin early next year and run through mid-1974, will subject the F-106A and F-102As to loads that would be experienced in 32,000 and 28,000 hours of flying time, respectively — a requirement for recertification for 8,000 and 7,000 hours of use.

The F-102s and F-106s were originally certified for 4,000 hours of flight. The F-106s are used by the Aerospace Defense Command fighter-interceptor squadrons and the F-102s by Air National Guard units.

"There's still lots of life left in the old girls—and our task is to prove it," Brandt said.

The F-106A also will be used for flight testing of a metal prototype and a production model of the stretched-acrylic clear-top canopy the Air Force plans to use on F-106s in the future for better pilot "over the shoulder" visibility.

After validation of the design, the clear-top canopies are to be tested both on a sled at Holloman AFB, N.M., and on the test

(Continued on Page 2)

Simmons Elected Mgt. Assn. Prexy

Charles B. "Chuck" Simmons, supervisor of administrative services for launch vehicle programs, will be installed as president of Convair Management Association at an annual awards and installation dinner June 9 in the Atlantis Restaurant.

C. B. Simmons

Other new officers to be installed are Lyle Wood, executive vice president; Don Evanson, recording secretary; Bill Ochodnicky, financial secretary; Art Medrano, treasurer; and Don Menard, Don Berhow, and Gerry Nuss, members of the board of directors.

Bob Mantzke, an entertainer, humorist, and singer, will be featured in a program to follow the no-host social hour at 5:30 p.m.,

(Continued on Page 2)

High School Courses Slated

Convair Aerospace-SD's educational services section will offer a diversified program of in-plant courses leading to a high school diploma beginning June 21.

Classes will be scheduled from 4 to 7 p.m. Mondays and Wednesdays or Tuesdays and Thursdays for six weeks in Bldg. 14 at the Lindbergh Field plant.

The curriculum is designed to meet needs ranging from those of students requiring a complete high school program to those lacking only one subject for graduation.

A basic education program to prepare students for the high school equivalence G.E.D. (general education development) test also will be available.

For enrollment application or further information call Wayne Turner of educational services, ext. 2564 LF.

Bulky Records Reduced By Microfiche System

Convair Aerospace-SD is implementing a new records keeping system that will save the operation more than $50,000 a year by substituting microfiche for approximately a half-million pages of computer-printed report data each month.

Harvey Hiller, management systems Dept. 152-2 coordinator for installation of the Micromation system, said 264 DatagraphiX model 1400 microfiche viewers and 25 model 1335 viewer-printers are being obtained for use—with first delivery tentatively scheduled in July. Several older model 1325 viewers are on loan for use in checkout and initial implementation of the system.

Hiller said plans call for an estimated 447,250 pages of computer reports now being impact-printed for six departments to be converted to microfiche.

Implementation and management of the program is under the direction of Fred D. Schwend, chief of data systems, and Frank G. Pallan, data systems supervisor. Microfiche recording is being provided by third-shift DatagraphiX personnel on a recorder that can reproduce 1¾-million pages of computer-generated data per month.

Each 4 x 6-inch microfiche film can accommodate 208 pages of computer data and can be produced at a cost of ½-cent per page—compared with two cents per page for impact printing. Duplicate copies also can be made at a cost of 8½ cents per microfiche on "virtually indestructible film."

"We can put up to 100,000 pages of report data on 481 microfiche," Hiller said. "About 10,500 hours of filing time per year will be saved in the production control department alone — with similar savings expected in other departments that have large filing and records keeping tasks."

Each microfiche will have the manufacturing day (M-day) or date created, report number, and "fiche" number printed at the top — and also has space for part number or other indicative data.

(Continued on Page 2)

SPACE SAVER — Helen Kuentzel, Convair Aerospace Dept. 840-1 records auditor, holds microfiche containing 208 pages of computer-generated report data as Harvey Hiller of Dept. 152-2 looks on in left photo. At right, W. R. Teran, Dept. 840-1 inventory analysis supervisor, checks one of 15,000 pages of disposition inventory records that have been replaced by 140 microfiche.

EDWARD E. LYNN

Edward E. Lynn New Corp. Vp

Edward E. Lynn has been appointed vice president and general counsel of General Dynamics, David S. Lewis, chairman and chief executive officer, announced.

Lynn, who has been vice president and chief legal officer of Lykes-Youngstown Corp., Youngstown, Ohio, will assume his new post at the General Dynamics Headquarters in St. Louis, Mo. in June.

Lynn, a native of Coldwater, Kan., graduated from the University of Illinois and took his law degree at the same institution. He was an officer in the U.S. Army in World War II and then practiced law from 1947 to 1957 with the predecessor of the Chicago firm of Jenner & Block.

In 1957, he was named vice president of Fairbanks, Morse & Co. of Chicago and, four years later, joined the Youngstown Sheet and Tube Co. as assistant general counsel.

He subsequently became general counsel, secretary and a director of Youngstown Sheet and Tube and in 1969, when Lykes Corp. and Youngstown Sheet and Tube merged to form Lykes-Youngstown Corp., he became a director, member of the executive committee, vice president and chief legal officer of the new company.

Lynn's legal experience and background cover a wide range including labor law, finance, antitrust, patents and general corporate legal matters.

ADVANCED MATERIAL—Ken Carnahan, left, and Ralph Kiger of Convair Aerospace-SD look over carbon-carbon fluted core test cylinder. The non-metallic material is considered an excellent candidate for Space Shuttle thermal protection and other high-performance re-entry applications.

Two Years of Research Climaxed By New Material Development

Two years of company-funded research and development work by Convair Aerospace-SD engineers has resulted in fabrication of a rigid high-temperature-resistant non-metallic carbon-carbon structure that is considered an excellent candidate for use as thermal protection on Space Shuttle and high-performance ballistic re-entry vehicles.

Test structures up to two feet square of advanced carbon-carbon (carbon fiber - reinforced carbon matrix) composites have been produced for Convair Aerospace-SD by the Defense Products and Woven Structures divisions of HITCO, a subsidiary of Armco Steel Co.

Similar materials also are being produced for Convair Aerospace-SD use in heat shield studies being conducted under contracts from the Air Force Flight Dynamics Laboratory and Air Force Weapons Laboratory.

The strong but light - weight carbon-carbon double-walled and fluted-core structures get their start as a special three-dimensionally - interwoven rayon fabric that is converted at high temperatures in an inert atmosphere into a carbon or graphite fabric. The converted fabric then is shaped by internal flexible mandrels and other tooling, impregnated with high-carbon-yield resins, and rigidized by curing in a vacuum furnace.

After removal of the tooling, the material is pyrolized and carbonized in a vacuum furnace at temperatures up to 5,000 degrees F. This results in a carbon or graphite fiber reinforced carbon matrix in the desired configuration.

Additional structural build-up and strengthening is provided by passing a carbon - bearing gas over the truss core at pre-determined temperatures. Pyrolytic carbon is deposited in the porous carbon-carbon by this process, increasing density and strength.

"Producing a low-cost and highly reliable thermal protection system for long-term use on high-temperature areas of manned reentry vehicles is one of the most difficult problems being faced in programs such as Space Shuttle," said Ken Carnahan, a materials research Dept. 572-1 senior research engineer.

"We don't have all the answers yet but advanced carbon-carbon is cost competitive with other candidate materials, has lower expansion characteristics, has higher temperature resistance by at least 1,000 degrees, and maintains a high strength-to-weight ratio at temperatures over 4,000 degrees F."

Use of various fillers, overlays, and coatings to eliminate long-term erosion (oxidation) of the carbon-carbon outer surface is being studied and several promising concepts are being developed. One promising coating, deposited by a chemical vapor deposition process, has been successfully applied to the fluted core.

Testing of carbon-carbon structures under simulated re-entry conditions is anticipated in the near future.

Ralph Kiger, an advanced structures Dept. 512-2 design engineer, said the proprietary techniques developed jointly by Convair Aerospace-SD and HITCO Defense Products Division can be used to produce almost any shape of advanced carbon-carbon structure.

"We are limited to four-square-foot structures at present by the size of existing high-temperature vacuum production chambers," he said. "But this system can be scaled-up for fabrication of larger single-piece structures if needed."

Carnahan and Kiger see carbon-carbon as having its greatest potential for use on Space Shuttle nose, lower surface, wing leading-edge, and other areas that will be subjected to high re-entry heating.

A carbon-carbon Space Shuttle leading-edge demonstration article, fabricated early last year, was selected by Dale Myers, NASA associate administrator for manned space flight, for display and use in recent Space Shuttle presentations to the House Committee on Science and Astronautics. It also has been used in recent presentations to Senate committees.

The double-walled carbon-carbon structure with fluted center trusses is expected to have advantages over other designs since attachment to the load carrying base structure of the shuttle vehicle can be through the inner wall—and since the open interior around the trusses can be filled with light-weight insulating foams or other materials if desired.

Carnahan, who serves as program manager for the contract and IR&D efforts, said many at Convair Aerospace-SD have provided assistance to the carbon-carbon advanced technology development.

Among those with major assist roles have been Dr. Ray Adsit of Dept. 572-1, who has handled mechanical properties testing; Don David of Dept. 584-0, who has provided thermal analysis; and Joe Lloyd of Dept. 587-4, who has provided structural analysis.

Carnahan, Kiger and HITCO personnel have given presentations on the carbon-carbon research and development at recent technical meetings and a Convair Aerospace-SD display on the work was exhibited at the Society of Aerospace Materials and Process Engineers meeting last month.

Salvage Schedule

Next employes sales day at the materials salvage yard, Lindbergh Field plant, will be Saturday, June 26. Hours are from 8 a.m. until noon. Entrance is by badge. Children and pets are not allowed inside the yard. Also not permitted are canvas or open-toed shoes and bare feet.

Bulky Records Reduced by New Microfiche Setup

(Continued from Page 1)

A composite index for each type of report with references to microfiche numbers and frames by X-Y coordinates will make possible quick location of a desired report page in the microfiche file.

The microfiche file can be stored in standard 4 x 6-inch Cardex files. Reports containing a small number of the "fiche" can be kept in notebooks with slotted microfiche inserts.

Schwend said Convair Aerospace-SD will save an estimated $42,881 in the production control department alone during the first year after conversion to the Micromation system, after amortization of viewer purchase costs, and an estimated $58,279 in the department each year thereafter.

It is anticipated that full implementation of the new system will eliminate the need for two current computer impact-printer stations and will reduce printing time and simplify handling, distributing, and filing of computer-generated reports.

Hiller said each of the DatagraphiX 1400 viewers on order will have a non - glare acrylic screen, will take up only about 12 by 15 inches of desk space, and will have a microfiche holder that opens and closes automatically as it is moved to and from the viewing position.

The DatagraphiX 1335 viewer-printers will electrostatically reproduce a page from a microfiche in 10 seconds at the push of a button. The image on the viewing screen can be reproduced on 8½ x 11 or 11 x 14-inch sheets.

Simmons Elected Mgt. Assn. Prexy

(Continued from Page 1)

presentation of awards and installation of officers at 6:30 p.m., and dinner at 7:30 p.m.

Tickets for the meeting are now on sale through Management Association boosters at $4 for members and $5 for non-members.

Seven sons and daughters of Convair Aerospace - SD employes will be presented $500 college scholarships by the Management Association during the awards presentation ceremonies.

Mantzke, winner of seven national and two world choral titles, is a soloist with the Minneapolis Symphony and has appeared in more than 40 theatre roles ranging from "Figaro" to Tony in "Most Happy Fella."

His repertoire ranges from concert fare to folk ballads and includes 12 Broadway show medleys. He also directs the 12-man Bob Mantzke Singers.

Be sure to use the ZIP code when addressing mail. It speeds up delivery!

F-102, F-106 Studies To Lengthen 'Life'

(Continued from Page 1)

plane.

George Miller is principal engineer and Larry Clements is chief technical engineer for the F-102 and F-106 structural integrity test programs and Royce Riggan is principal engineer for the clear-top canopy program.

Bob Fefferman is responsible for dynamics, Lyle McClain for instrumentation design, H. A. Billings for purchasing, and Frank Carpenter for data analysis for the ASIP activity. Experimental (Dept. 031) is handling instrumentation and will participate in the fatigue tests on the test planes. Testing will be done by engineering test labs at the Harbor Drive facility.

Brandt said plans propose the aircraft be tested "to failure" in the fatigue test program to really show how much usage they can withstand.

Currently being completed by Convair Aerospace-SD under SAAMA contracts are development of non-destructive inspection (NDI) manuals for F-106 A and B aircraft, a mathematical model for IRAN (inspect and repair as needed) for the F-106, and a merged-data-usefulness study for F-106 aircraft IRAN time-sequence studies.

Darrell Houtz is in charge of the NDI manuals and Joe Condon of the IRAN math models and merged-data tape studies and reconstitution.

Convair Aerospace-SD will be among several firms bidding for a multi-million-dollar SAAMA production contract for equipping F-106s with new General Electric 20-mm gatling guns. The rapid fire guns would be mounted in the aircraft missile bay aft-center section and would be interchangeable with the AIR-2A Genie rocket.

Brandt said a technical proposal has been developed and submitted in the first step of a two-step procurement for the F-106 A and B PUP (power upgrade program) which would involve extensive state-of-the-art modification of the electrical generation and distribution system.

The RFP calls for the firm receiving the contract to develop, integrate, protoype, flight test, and provide modification kits for the program.

Convair Aerospace-SD also has had a six-man team at SAAMA Headquarters in San Antonio providing engineering design data for another Department of Defense-directed program in which the T-29, C-131, F-102, F-106, and all other military aircraft will be provided with a new system for air-to-air and ground-to-air identification.

The team included John Sawicki, Joseph E. Franc, Donald L. McCrary, Harold C. Meservy, George E. Shields, and Jorge J. Zorrilla.

Other "potential future business" includes production of modification kits for multi-purpose F-102s proposed to be operated by military services of other countries, and other SAAMA tasks, including preparation of a corrosion manual for the T-29.

"Convair Aerospace has developed a reputation not only for having produced some of the finest and toughest aircraft in the Air Force and Air National Guard inventory—but for outstanding support services," Ferguson said.

"With funding for new aircraft development and production extremely limited for the forseeable future, we will do all we can to assist the military services in improving and extending the operational life of our aircraft that are currently being used."

★ ★ ★

F-106s Earn 'Commander's Plaque' For 80 Months Accident-Free

The 48th Fighter - Interceptor Squadron at Langley AFB, Va., has been awarded the Aerospace Defense Command's "Commander's Plaque" in recognition of its having completed 80 months of accident-free flying in Convair Aerospace-SD-built F-106s.

Pilots from the 48th FIS flew 44,000 hours in F-106s during the period covered, which is believed to be a record for an active duty fighter squadron, and which included a six-month deployment at Osan AB, Republic of Korea, during the Pueblo crisis in which the squadron flew armed reconnaissance missions to support U.S. and Korean aircraft.

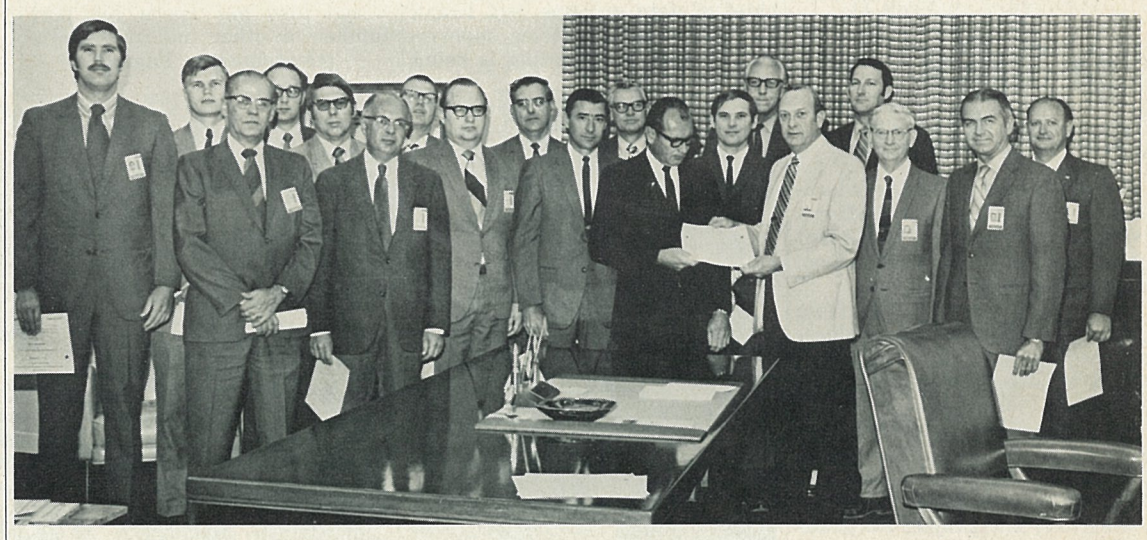
"The accomplishment is further enhanced by the fact many of the flights are made on an alert status where the F-106s are "scrambled" on unknown aircraft during any kind of weather and any time of day or night," a spokesman said.

The 48th maintains F-106s on alert at Langley AFB and Homestead, Fla. The alert aircraft must be airborne in less than five minutes from the time they are "scrambled."

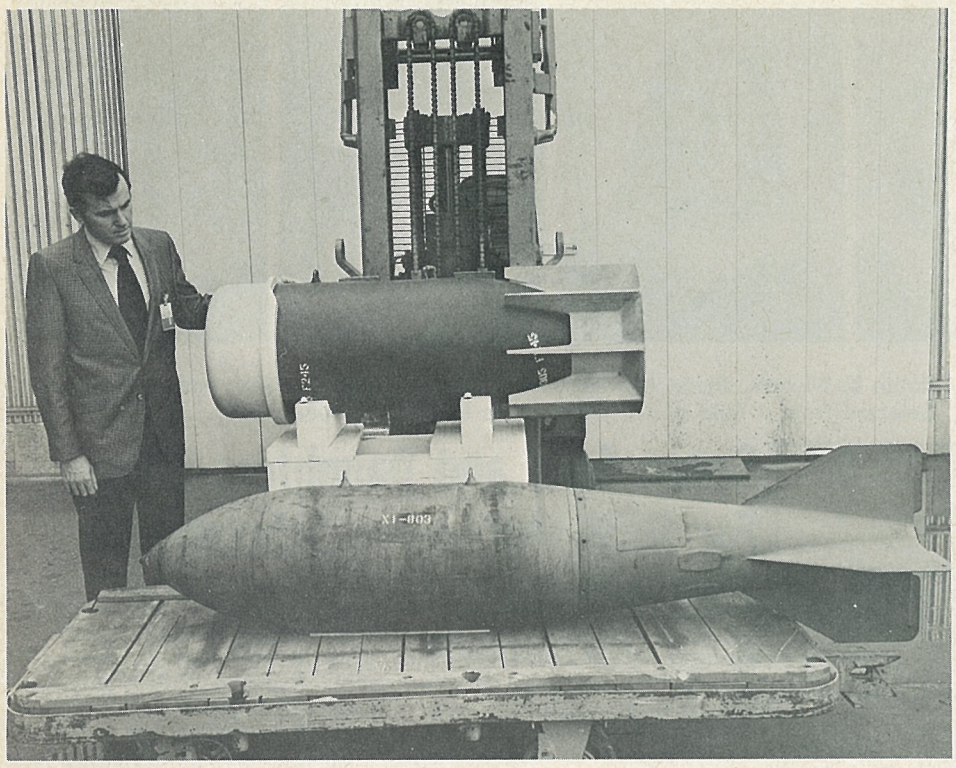
L. I. Goodlee is Convair Aerospace-SD area field representative for squadrons with F-106s at Langley; Tyndall AFB, Fla.; and Dover AFB, Del.

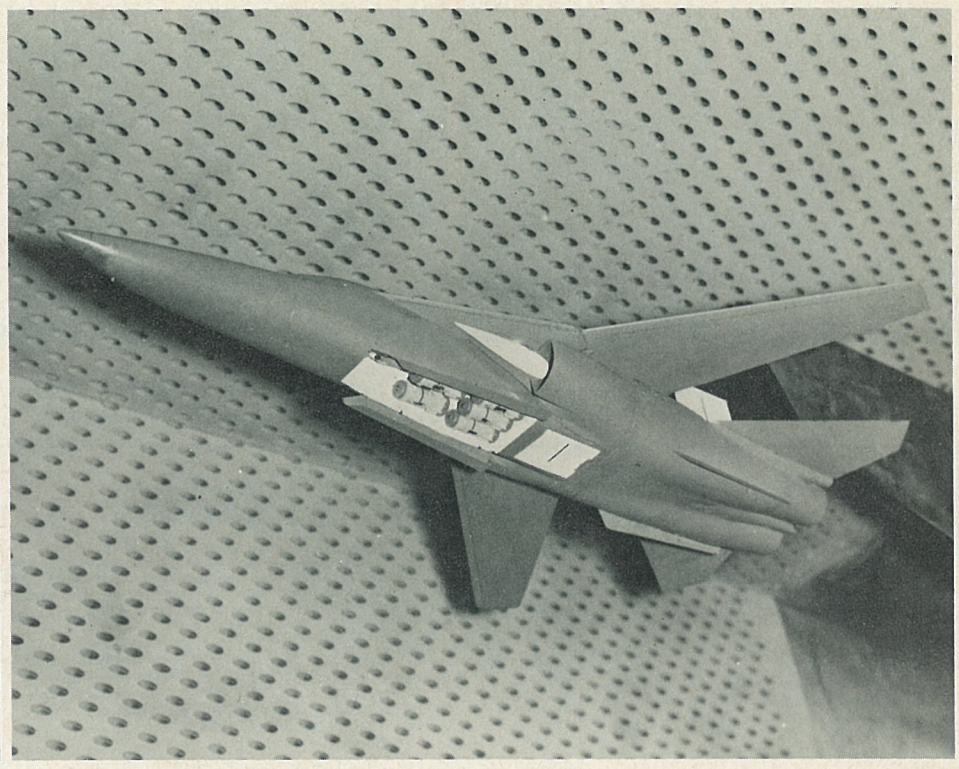
HERITAGE THEME FOR COINEERS

"American Heritage" will be the theme of CRA Coineers meeting at 7:30 p.m. June 14 in the CRA Clubhouse. Best displays by members reflecting the theme will be awarded a trophy and ribbons.



LECTURE LAURELS—M. C. Curtis, Convair Aerospace-SD vice president and general manager (in white coat), presents certificates to division employes who attended educational lecture series on transonic flow presented in March and April by San Diego section of American Institute of Aeronautics and Astronautics. From left are N. A. Ponomareff, S. K. Pederson, C. S. Dickerson, G. J. Fatta, W. H. Lowe, H. L. Robinson, A. T. Hunter Jr., K. E. Marks, R. R. Lanflisi, E. R. Emerson, W. D. Reeder, E. C. Laudeman, C. A. Whitney, W. E. Service, Curtis, Joe Hebert Jr., W. V. Carter, W. F. Chana, and H. A. Mellinger. F. W. Eder and W. J. Ketchum were not present for photo. Dr. Hideo Yoshihara, a Convair Aerospace-SD engineering staff specialist, was one of six guest lecturers for series.





NEW LOOK — Fort Worth operation engineers have developed modification kit that can be used to convert a conventional bomb (like M-117 in foreground) into smaller, more compact bomb such as that being inspected by Tom Collins, TART project engineer. Extensive wind-tunnel drop program of new bomb was made at AEDC four-foot transonic tunnel on this 1/24th scale F-111 model before actual drop program was launched at Eglin AFB.

Luce Back in Commission, Begins Modernization

USS Luce (DLG-7), a guided missile frigate, was recommissioned into the U.S. Navy at Philadelphia Naval Shipyard Saturday, May 22, and commenced Phase III of its modernization program.

RAdm. David H. Bagley, Assistant Chief of Naval personnel, was the principal speaker at the recommissioning ceremonies.

Cdr. S. S. Pearlman is commanding officer of Luce. Other officers include LCdr. G. F. Streeter, executive officer; Cdr. S. J. Pryzby, weapons officer; LCdr. K. D. Wilson, engineering officer; and Lt. (j.g.) F. W. Duesi, missile officer.

Luce is ninth in a series of Terrier ships to undergo fleet modernization. Six of the ships have completed Phase III. They are: USS Leahy (DLG-16), USS Harry E. Yarnell (DLG-17), USS Gridley (DLG-21), USS Farragut (DLG-6), USS Preble (DLG-15) and USS Reeves (DLG-24). Luce joins two others, USS Worden (DLG-18) and USS Dewey (DLG-14), in Phase III.

General Dynamics is specialized systems test contractor for the program in which a total of 20 ships are scheduled for fleet modernization. Major responsibilities of the specialized systems test include training crews in operation and maintenance of combat systems and participating as required in troubleshooting and resolution of problems.

C. T. Pearson of systems activation and support center is Pomona operation's project manager for the modernization program. General Dynamics' representatives assigned to Luce were C. W. Johnson and A. J. Smith, P. T. Cook is senior on-side representative at the Philadelphia Naval Shipyard.

Luce is the third ship of the fleet to be named in honor of RAdm. Stephen B. Luce, USN, founder of the Naval War College and pioneer in developing an effective apprentice training system for seaman of U.S. Navy.

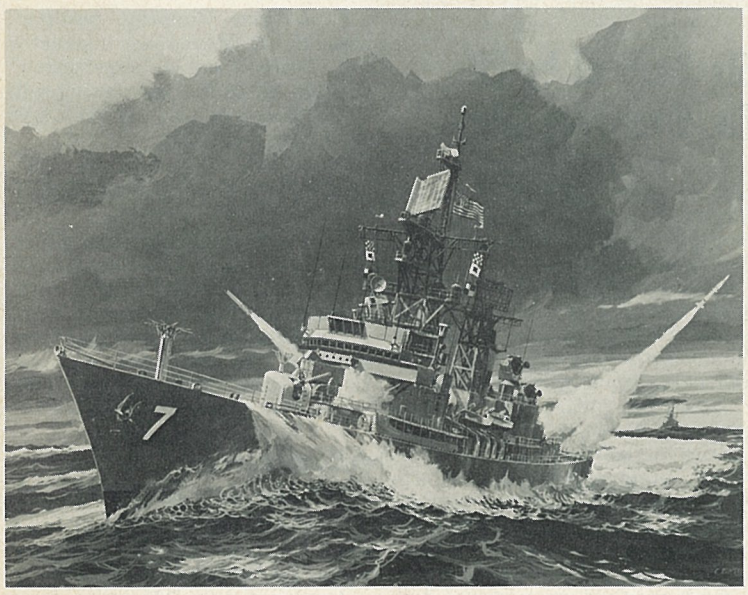
The present Luce was commissioned in Boston Naval Yard in 1961. Her first commanding officer was Admiral Bagley (then a commander).

Luce's mission is to operate independently, or with strike, anti-submarine or amphibious forces, against submarine, air and surface threats.

The ship's main battery is its missile system which uses General Dynamics-produced Extended Range Standard Missiles to engage surface targets, supersonic aircraft and missiles. Luce's armament also includes ASROC and a 5"/54 gun system. These weapons are supported by updated sensor systems, including surface and air search radars, three-dimensional air tracking radar and sonar.

Luce's weapons are coordinated with those of other ships and aircraft through the Navy Tactical Data System.

The 375-man crew has already completed a program of basic training in electronics, engineering, ship handling and missilery. Luce now begins an intensive period of advanced testing and training in preparation for fleet operations. The ship will be homeported in Newport, R.I.



MODERNIZED — USS Luce (DLG-7) was recommissioned Saturday, May 22, at Philadelphia Naval Shipyard under DLG Modernization Program. Luce is ninth in 20-ship program. Artist's drawing is by Ed Ramstead of Pomona operation.

Facilities to Close For Memorial Day

General Dynamics facilities will be closed Monday (May 31) for legal observance of Memorial Day.

The holiday will create a three day weekend for most employes except those performing necessary security and maintenance tasks.

Regular shifts will resume Tuesday, June 1.

I. B. Hale Dies, Ex-Grid Great

I. B. Hale, 55, manager of industrial security at Fort Worth operation, died of a heart attack May 14 in Fort Worth. He had been with the company 20 years.

Hale earned All-America honors as a tackle and captain of the 1938 Texas Christian University football team that won the national championship.

I. B. Hale

After graduation from TCU, he coached football at Kilgore High School before joining the FBI. During this period, he rated as a master by the National Rifle Association and won the International Individual Pistol Championship.

A man of many interests, Hale served on the board of directors of many organizations, including: Young Men's Christian Association, Cotton Bowl Association, Amon Carter Blood Bank, and American Cancer Society.

New Bomb Configuration Developed at Fort Worth

Fort Worth operation has developed a new bomb configuration that reduces a regular weapon's size by nearly one-half and promises an overall improvement in bombing accuracy, especially at low level.

The operation has manufactured 60 modification kits—plus a bomb rack—that are used to convert today's conventional bombs to the new shape.

Work was funded under a $229-000 Air Force contract called "Early Start," sponsored by the Air Force Armament Laboratory Munition Compatability office at Eglin AFB.

Fort Worth engineers conceived the new bomb shape during company-funded feasibility studies of its Transonic Armament Technology (TART) Program started in late 1969. TART will provide "proof-of-concept" of advances in aircraft and weapon compatibility.

Fort Worth's unsolicited proposal to the Air Force resulted in a flight-demonstration program of the modified bombs at Eglin, using F-111A No. 26 and F-111E No. 4.

To change the shape of a conventional M-117 bomb, engineers replaced the long-finned aft section from the warhead with a nose and tail cap.

The ringed nose cap results in less aerodynamic lift generated by the nose, while the splinned tail cap provides a high level of stability. Result: a bomb shaped more like a cylinder than the sleek weaponry carried by today's high-performance aircraft.

Wind-tunnel tests — and flight-tests to date — tend to prove that the modified shorter bombs have several potential advantages over conventional bombs.

"Since they're shorter," said Tom Collins, TART project engineer, "more of the bombs can be placed inside the aircraft rather than hung under the wing or fuselage.

"Externally placed weapons create drag, sometimes as much as a 70 per cent increase, and prevent a high-performance aircraft from approaching a target at top speed, especially at low altitude. The modified bomb separates from the aircraft more efficiently and falls to the target with greater accuracy.

"Net effect is that a high-performance aircraft, with its high-density payloads stored inside, can approach the target at higher speed, deliver its payload nearer to the target—with greater accuracy — and leave the strike area faster."

Air Force drops of the modified bombs at Eglin have been at various altitudes and at speeds varying from Mach 0.8 to 1.3. "They have been concentrating on drops at 2,000 feet or below," said Collins, "since this is where the real payoff comes on most tactical bombing missions. We have been trying to simulate operational conditions as much as possible.

"With the technology developed from this program, we are exploring new concepts of internal weapon carriage for application to tomorrow's new aircraft. These types of weapons will permit the aircraft designer to develop a configuration that can deliver multiple bomb loads at supersonic speeds at low altitude.

"Our 'Early Start' Program has been running very smoothly," Collins said. "We've dropped 13 bombs, with the remaining bombs slated to be made by July. Results have been encouraging.

"We feel right now that we can look forward to additional program scope and funding in the near future.

AF Systems Commander Calls F-111 'Tremendous'

No amount of sniping should cause us to lose sight of the fact that the F-111 is a "tremendous system" that will long help to keep this nation free.

So said Gen. George S. Brown, commander of Air Force Systems Command, to the Washington Chapter, American Ordnance Association, Fort McNair, Washington, D.C. recently.

"The F-111 . . . is more advanced than anything even remotely similar in the world," General Brown said. "No other airplane in the world today is capable of such deep penetration against heavy defenses, and of such accuracy in hitting its target."

He lauded FB-111s for outdoing both B-52s and the Royal Air Force's Vulcan bombers to win the recent SAC Bombing Competition—"a real test in a really tough league indeed."

General Brown said the F-111 had borne a tremendous amount of criticism, especially as to cost. "So it's important to remember," he said, "that these programs—like every major system—were intensively and exhaustively reviewed within the Office of the Secretary of Defense, the Congress, the Scientific Advisory Board, and practically everywhere else. Both programs were accepted; both were approved; both were funded . . . .

"Program stretchouts, changes in quantity from thousands to hundreds, up-and-down financing, a multiplicity of different models, inflation—all these things inevitably drove the price up.

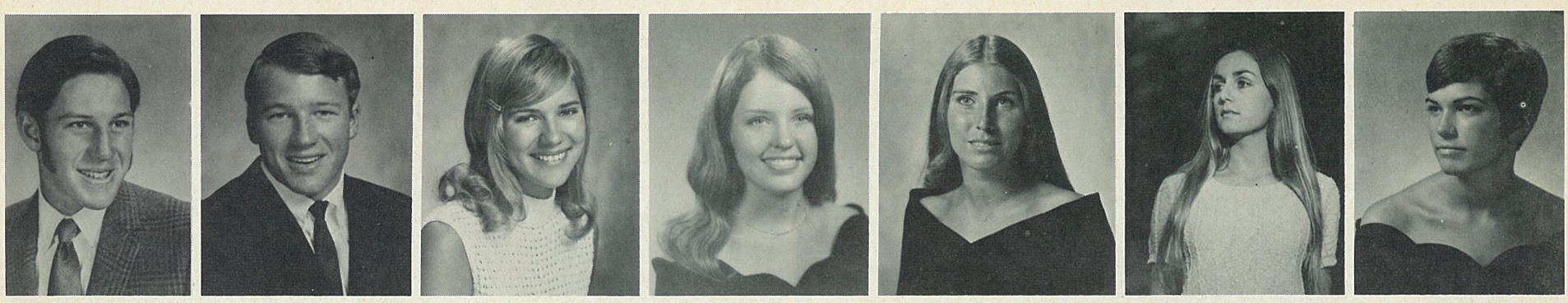
"Yet, as I have pointed out, even at the higher cost we have actually bought one of the greatest airplanes flying today. And despite the sensational accident stories that have gotten so much attention, the F-111 has had a better history—a better safety record—than any of our supersonic fighters to date."

Doyle Heads Convair Cost Reduction, VC

C. W. Doyle Jr. has been assigned responsibility for the Convair Aerospace Division Cost Reduction and Value Control Program, President Frank W. Davis announced.

Doyle will report to E. E. Hatchett, vice president of management and operations. He will maintain his office at Fort Worth and continue to be in charge of the Fort Worth cost-reduction and value-control effort.

"The products we produce at Convair Aerospace Division must not only represent the ultimate in usefulness and quality," Davis said, "but must represent good value."



SCHOLARS — Winners of the Convair Management Association $500 scholarships are from left, Michael J. Slovacek, Thomas M. Piszkin, Heide Marie Boekamp, Robin K. Nichols, Joyce Ann Armstrong, Stephanie N. Donovan and Jo Ann Sauer. Selected from a field of 73, they will be honored at June meeting.

Log Book Entries

Service Emblems

CONVAIR

Service emblems due between May 16 and May 31.

Thirty-Five-Year: Dept. 104-5, Robert I. Morse.

Thirty-Year: Dept. 001, S. Boyd; 045, J. S. Butina; 143, E. H. Ulsund; 149, J. W. Waller; 204, R. Barbat; 250, C. P. Zarrad; 400, O. L. Hunley; 401, J. R. Heriot; 733, S. Serrano; 759, G. J. Leggott.

Twenty-Five-Year: Dept. 001, E. T. Gregory; 057, S. D. Berling; 400, L. B. Raper; 532, A. R. Perl; 962, S. Jurchenko Jr.

Twenty-Year: Dept. 101, Wilda H. Grimes; 142, E. K. Ames; 221, J. H. Wilson; 222, D. E. Burson; 401, D. C. Cooper; 500, E. W. Boteler; 514, W. D. Snell; 518, Iris K. Armistead; 810, R. Chavez; 834, H. E. Hayes; 840, L. J. Costello; 953, H. H. Mekemson; 962, G. A. Jarvis; 967, A. F. O'Brien.

Fifteen-Year: Dept. 002, N. Moffett Jr., W. E. Thompson; 016, Julia B. Royer; 046, J. Nonzeta; 101, Ruth E. Williams; 110, R. J. Cairns Jr.; 130, R. G. Maler; 131, G. H. Hodges; 142, A. Gregori; 145, T. Proppe; 146, Anita Munchweiler; 149, J. J. Curci Jr., Paula C. Rojas, Sarah B. Robinson; 191, Helen D. Kieimeyer; 193, Ada Mae Johnston; 194, D. H. Leonard; 222, F. LeRibeus; 223, Sally V. Wallace; 202, B. L. Lange; 250, G. S. Brooks, G. J. Kieber Jr., D. D. Sturhann, A. Widmer; 400, T. E. Njos; 401, C. W. Greenlee; 512, T. C. Stark; 541, G. S. Fletcher; 551, C. M.. Hay; 565, D. I. Keffler; 567, Etha M. Ellingson; 575, M. A. Dutcher; 595, V. D. Stewart; 731, P. B. Flores; 754, Dorothy T. Peterson; 810, Esther J. Adamov, W. R. Stanley; 820, A. R. Hermann; 832, A. L. Mallory; 834, F. M. Hadaway, D. W. Huss; 840, Helen Christerson, R. L. Smith; 954, D. L. Fleury; 979, W. L. Jones Jr., B. B. McClure, H. H. Packer Jr., Bob Sweet; 989, W. F. Faupel.

Ten-Year: Dept. 015, J. J. Blekkink; 019, R. H. Stohr; 046, Rose Haskins; 101, Martha C. Watson; 149, E. Duzak; 151, M. Schindler; 196, Mary E. Barrett; 250, Carol S. Boggs; 516, C. E. Guy; 834, C. D. Jennings; 850, R. H. Quinn; 860, A. L. Deane; 985, A. B. Jolly Jr.

ELECTRO DYNAMIC

Service emblems issued during the month of May.

Thirty-Year: Dept. 448, I .G. Rooder.

Twenty-Five-Year: Dept. 444, W. M. Young.

Twenty-Year: Dept. 445, H. D. Dudley; 526, W. S. Rees; 565, Marian H. Champlin; 614, R. A. Harwood.

Fifteen-Year: Dept. 444, Genevieve H. Ahlgren, Mabel Mitts, Georgia H. Runnels; 445, Clara G. Collins, Laura M. Heidrich, R. E. Moore, R. E. Pullen, Jenny M. Rowan; 447, M. A. Godeke, W. B. Haney, C. W. Heath; 449, Christine Boynton, Evelyn M. Burns, R. R. Lewis, Eunice A. Paquin, Mardelia Perry, Frances Ratsch, J. M. Rodrigues, Dolores Williamson; 525, O. B. Simonton Jr.; 526, Carmen C. Vasquez; 565, Sadie O. Stout; 711, E. O. Campbell; 923, A. E. Kampmann, Nellie B. Harris; Dorothy M. Smith, Mary V. Sponsler.

Ten-Year: Dept. 109, Patricia J. Hardisty; 427, G. Vetter; 565, Joanne E. St. John; 712, Lorraine C. Pearson; 811, Carol J. Little.

Awards

CONVAIR

Employe Suggestion awards approved for week ending May 7:

C. E. Allen, Dept. 149-5, $15; D. P. Angle, 228-3, $259.50; R. F. Austin, 979-2, $15; R. N. Blaisdell, 250-2, $25; L. E. Bramwell, 149-5, $94.10; S. Broda, 015-0, $15; R. R. Brown, 143-5, $15; M. E. Chiara, 149-3, $15; R. M. Daugherty, 027-0, $24.80; A. M. Easton, 761-0, $30.60; D. T. Edwards, 754-0, $15; C. L. Gross, 979-2, $23.90; W. A. Heitzman, 511-4, $15; F. D. Holbrook, 759-0, $15; M. A. Jackson, 046-0, $74.60; R. M. Jones, 170-8, $15; J. B. Julian, 027-0, $100.80 (six awards); M. A. Julio, 250-3, $31; L. R. Kassman, 227-1, $15; P. L. Kuentzel, 027-0, $15; W. E. Linberg, 780-2, $22.90; S. C. McFarland, 148-2, $15; L. M. Moore, 511-4, $60 (four awards); I. P. Mouet, 046-0, $15; D. F. Petty, 015-0, $18.80; A. Sansone, 541-0, $25.20; C. R. Snow, 046-0, $20; J. Solowey, 759-0, $15; D. B. Tatum, 015-0, $26.70; W. L. Woodward, 015-0, $70.30.

Employe Suggestion awards approved for week ending May 14:

L. E. Anderson, Dept. 019-0, $8.35; M. J. Arguello, 019-0, $17.80; F. A. Boyle, 460-0, $365.30; V. D. Brose, 985-1, $202.40; N. J. Callas, 579-2, $15; L. R. Chapman, 195-8, $15; R. Chavez, 810-1, $327.60; J. A. Chertkow, 001-0, $15; M. E. Chiara, 149-3, $49.30; R. R. Clarke, 015-0, $7.50; H. R. Dawson, 046-0, $82.50; D. H. DeMarce, 531-2, $15; G. E. Finley, 015-0, $25; V. L. Foster, 250-3, $22.50; R. L. Fraser, 754-0, $15; R. F. Garcia, 250-5, $15; W. E. Gille, 250-3, $15; J. A. Grande Jr., 250-2, $67.10; F. N. Greif, 031-0, $45.20; H. M. Harvey, 565-1, $217.60; W. A. Heitzman, 511-4, $15; A. LaLicata, 015-0, $15; R. V. Lucero, 019-0, $131.30; E. H. Minder, 250-1, $15; L. M. Moore, 511-4, $90 (six awards); P. Nielsen, 170-8, $15; F. L. Popham, 046-0, $36.60; B. G. Sherwood, 988-1, $15; L. Simonton, 228-4, $15; J. J. Smith, 511-4, $15; J. F. Spencer, 019-0, $8.35; J. N. Strong, 250-2, $15; F. S. Taijeron, 015-0, $7.50; A. C. Taranto, 512-3, $19; V. J. Wassmuth, 979-3, $15; S. Williams, 222-1, $19.50; D. L. Young, 015-0, $15.

Papers Presented

CONVAIR

Papers presented at Space Shuttle Propulsion Technology Seminar, NASA Marshall Space Flight Center, Huntsville, Ala., April 6-7:

TATRO—R. E. and G. B. YATES, Dept. 584-0, "PPO foam internal insulation."

TATRO—R. E. and M. H. BLATT, Dept. 584-0, "Orbital cryogenic acquisition/transfer."

Papers presented at fifth annual Western Plastics for Tooling Conference, San Diego State College, April 2-3:

NEUBERT — Hans D., Dept. 512-2, "Development of graphite epoxy components."

STEELE—WILLIAM A., Dept. 591-0, "Weight abolishment system."

Paper presented at Society of Automotive Engineers meeting, San Diego, April 15:

WALTER—R. K., Dept. 550-0, "Power generation, distribution, and control current configuration description-booster."

Paper presented at American Ordnance Association Standards and Metrology Division meeting, NASA, Houston, Texas, April 15:

GILL—S. W., Dept. 142-1, "When to replace test equipment."

Paper presented at AIAA/ASME 12th Structures, Structural Dynamics, and Materials Conference, Anaheim, Calif., April 19-21:

HOWELL—L. J., Dept. 585-0, and DR. K. Y. LIN, University of Illinois, "Response of flight vehicles to nonstationary atmospheric turbulence."

Papers presented at Eighth Space Congress, Cocoa Beach, Fla., April 19-23:

LYNCH — ROBERT A., Dept. 546-1, "The Space Shuttle booster."

PETERS—CARL F., Dept. 952-5, "Centaur/Shuttle integration and operations."

BUTSKO—J. E., Dept. 583-0, "Space Shuttle booster wing planform trade studies."

Papers presented at ASTM-D30 meeting, Anaheim, Calif., April 20-22:

ADSIT—N. R. and K. R. CARNAHAN, Dept. 572-1, "Mechanical behavior of 3D composite ablative materials."

CHRISTIAN — J. L., Dept. 572-1, "Analysis of improved boron/aluminum composites."

Papers presented at American Ceramic Society meeting, Chicago, Ill., April 24-27:

WEISINGER — M. D., Dept. 572-2, "Fabrication of boron aluminum tubes, I-beams, and other structural shapes from tape materials."

HERTZ—J., Dept. 572-1, and J. D. FOREST, Dept. 512-2, "Data generation for engineering design with advanced composites."

CARNAHAN — K. R., Dept. 572-1, "Carbon-carbon composites for Space Shuttle re-entry thermal protection."

Paper presented at AGARD meeting on "Facilities and techniques for aero testing at transonic speeds and high Reynolds numbers," Gottingen, Germany, April 26-28:

YOSHIHARA—H., D. J. PEAKE, D. ZONARS, and W. CARTER, Dept. 570-0, "Transonic performance of planar jet flapped airfoils at high Reynolds numbers."

Paper presented at AIAA sixth Thermophysics Conference, Tullahoma, Tenn., April 26-28:

NEU—J. T., E. H. WRENCH, and H. H. LAU, Dept. 596-0, "A module for measuring optical degradation."

Paper presented at Institute of Environmental Sciences 17th annual meeting and equipment exposition, Los Angeles, April 26-30:

AGALIDES—E., Dept. 592-0, "The effect of organic-phosphorus insecticides on the nervous system of vertebrates."

Deaths

CONVAIR

BURRIGHT—Melvin, Dept. 221-2, died May 7; survivors include his wife, Lyndone, and a daughter, Judi.

COOPER—James H., Dept. 130-8, died May 1; survivors include his wife, Susie, and two sons, Donald and Dail.

CORBETT — Philip W., Dept. 531-2, died May 12; survivors include his wife, Helen, and two daughters including Mrs. Carol M. Rinehart of San Diego.

DENT—Alvin E., Dept. 518-0, died April 23; survivors include his wife, Doris, and three daughters, Lynn Reid, Judy Holt, and Deeane Dent.

DYER—Cecil R., Dept. 401-5, died May 11; survivors include his wife, Lena, and a son, Marvin.

BUCKLEY — Esther A., Dept. 524-5, died May 13; survivors include her husband, Francis, and a daughter, Deborah Smith.

ROSENBERGER—Margaret L., Dept. 400-1, died May 15; survivors include her mother, Mrs. Laura Bachman.

"Cost Reducers"

CONVAIR

Twenty-five-award pin—L. M. Moore, Dept. 511-4.

Fifteen-award pin—I. P. Mouet, 046-0; A. R. Hermann, 820-0.

Ten-award pins—M. D. Myers, 802-0; M. Herndon, 001-0.

Five-award pins — R. J. Archibald, 810-0; T. L. Woodin, 420-2; G. D. Sanders, 802-0; C. E. Scott, 001-0; F. M. Church, 046-0; R. E. Culver, 143-1; G. F. Wilson, 149-8; H. A. Adams, 802-0; J. B. Anderson, 149-6; H. Luchner, 400-2; E. McLeod, 148-2; W. L. Carr, 202-0; R. M. Ramsey, 810-0; J. B. Julian, 027-0; R. H. Feeley, 810-0; H. M. Sturdyvin, 820-0; D. S. Stone, 802-0.

Personals

CONVAIR

I would like to express my deepest thanks to all of the many Convair friends for your kind expressions of sympathy at the loss of my husband, Mel Burright. I would like to extend a very special "thank you" to all of Mel's friends in manufacturing control for your help and kindness.

Mrs. Melvin Burright
and family

* * *

The family of James H. Cooper, Dept. 130-8 safety engineer, wishes to express its appreciation for the gifts, flowers, and expressions of sympathy received after his death.

* * *

I wish to thank my many friends for their thoughtfulness and their gift at the time of my retirement on April 30.

Lou Gibson, Dept. 046

* * *

I wish to thank my friends in data center and quality control for the wonderful party given me on my retirement.

Gladys Garten, Dept. 146-3

* * *

I wish to extend my thanks to all my friends at Convair who were responsible for the wonderful send-off on my retirement. I will always remember that day.

Lou Fischer

* * *

We wish to extend our utmost thanks and sincerest appreciation for the many acts of kindness and sympathy, the flowers and memorial gifts received for our beloved son and brother, Dennis Jenkins, during his hospitalization and upon his death from Viet Nam wounds.

Edward, Mary & Terence Jenkins
Mary Anne Woerner

ELECTRO DYNAMIC

I wish to extend my sincere appreciation and thanks to all who participated and wished me well in my recent retirement.

John Catterall, Dept. 716

General Dynamics News

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San Diego editorial offices:

Kearny Mesa plant, Bldg. 8, Mail Zone 104-61, P.O. Box 1128, San Diego, Calif. 92112. Phone 277-8900, ext. 3322.

Lindbergh Field plant, Bldg. 5, Mail Zone 104-60, Phone 296-6611, ext. 1071. P. O. Box 1950, San Diego 92112.

'Convair Alumni' Lunch Planned

More than 150 General Dynamics retirees and spouses are expected to attend a "Convair Alumni" luncheon at 11:30 a.m. June 8 in CRA Clubhouse auditorium.

Wayne Zook will give a filmed presentation of one of his trips with a Boy Scouts Explorers' group to shoot river rapids in rubber rafts. Herb Rubottom and Jim McFall will entertain with "old fashioned rock and roll melodies" on banjo and piano.

Walt Bailey, president, said the Alumni Club has continued to grow with each meeting.

More than 140 attended the May luncheon at which B. F. "Sandy" Coggan spoke on "Where do we go from here?" He received a standing ovation.

Reservations may be made by phoning June Reiger at CRA Clubhouse, 277-8900, ext. 1111.

Medlock to Chair Board of ASQC

L. I. Medlock, director of reliability control for Convair Aerospace-SD, will chair the board of the International American Society for Quality Control for a one-year period, beginning July 1.

A fellow of ASQC, Medlock currently is completing a one-year term as president of the 24,000-member professional engineering society that has 148 sections in the U.S., Canada, Mexico, and Japan.

Seven Sons and Daughters Chosen For $500 Mgt. Assn. Scholarships

Seven sons and daughters of Convair Aerospace-SD parents have been selected for the Convair Management Association $500 scholarships for their freshman year college expenses.

They are: Thomas M. Piszkin, son of Stanley T. Piszkin, design specialist, Dept. 583; Michael J. Slovacek, son of Jerry H. Slovacek, engineering illustrator, Dept. 403; Heide Marie Boekamp, daughter of Konrad M. Boekamp, project administrator, Dept. 149; Robin K. Nichols, daughter of Peggy J. Nichols, secretary, Dept. 046; Joyce A. Armstrong, daughter of Dr. R. C. Armstrong, manager of life sciences, Dept. 592; Stephanie N. Donovan, daughter of E. P. Donovan, engineer, Dept. 967; and Jo Ann Sauer, daughter of Walter F. Sauer, engineer, Dept. 967.

"Scholastically, these kids are tops," said Wayne Turner, manager of the association's program. "Of the seven, three have a 4.0 academic grade point average and only nine Bs were recorded by the others over the last four years."

They were selected from a group of 73 and judged on scholastic achievement as well as expression, appearance, poise, maturity and outside activities, Turner explained.

Young Piszkin attends Granite Hills High and plans to enter Cal Poly at Pomona this fall to pursue a career in chemical engineering. He was a semi-finalist for Calif. State Scholarship and took top honors in a recent Convair-sponsored math contest. Active in sports he earned varsity letters in both football and track and won the Sandy Niniger award as outstanding key clubber. At present he is helping his father build an airplane in their backyard and plans to acquire a private pilot license.

Attending Patrick Henry, young Slovacek will go to San Diego State, majoring in biology. Second in his class of 900, he is a life member of CSF (California Scholarship Federation), on the varsity football squad and swimming team, attended Calif. Boys' State and plays the guitar in a folk group.

Miss Boekamp, soon to graduate from Grossmont High, will attend UCSD this fall. Valedictorian of her class, she was a Bank of America Trophy winner, named American Legion's outstanding scholar, and a Calif. State Scholarship semi-finalist. Heide is editor of the school literary magazine and captain of the drill team. Her interests vary from stamp collecting to horseback riding and skiing to reading, and she also plays the piano.

Robin Nichols, from San Diego High, will major in English either at UCSD or at Pomona College. A life member of CSF she is also senior editor of the yearbook. In addition to her scholastic achievements, she manages to hold down a part time job.

A student at Helix High, Miss Armstrong will attend UC at Santa Cruz, pursuing a career in art or genetics. Active on campus, she is a varsity cheerleader, homecoming princess, voted outstanding member of student council and participated in Youth in Government Day. She enjoys sports and is a 3-year winner of the president's physical fitness award.

Miss Donovan attends Convent of the Sacred Heart and will enter Pomona College this fall to major in dramatics or English. She won the Bank of America award for English, placed second in the Dramatic Interpretation Festival at San Diego State and was named best actress in drama class. Active in school affairs and a cheerleader for St. Augustine High, she uses her spare time modeling for Sak's 5th Ave., enjoys sailing and plays a good game of tennis.

Jo Sauer is Valedictorian at Clairemont High and will seek a career in law or English and hopes to attend either Stanford or UCLA. She is active in school politics as well as being named Who's Who and editor of the yearbook. An officer in church youth group and a Sunday School teacher she also enjoys the piano and guitar.

The scholars will be honored guests at the June 9 Management Association meeting at the Atlantis restaurant.

Six Honored by ED For Error-Free Work

Zero Defects Craftsmanship awards were presented to six Electro Dynamic Division-SD employes for their outstanding individual performances.

Honored for consistently high quality error-free work, each exceeded normal volume of assignments with speed, determination and exceptional workmanship.

Receiving awards were Ethel Sparacio, F-111 assembly; H. S. Catron, office services; James T. Nilles, engineering R & D; Dorothy A. Daughn, material control; Barbara A. Farrens, fabrication; Anna Branom, product quality control.

Each received an engraved desk pen set and Craftsmanship pin. Award winners and their supervisors were guests of W. E. Bratton, vice president and general manager, at a luncheon at the Kona Kai Club.

Three Summer Courses Offered

San Diego Evening College will offer three summer session three-unit courses to all General Dynamics employes. Classes will be held at the Lindbergh Field plant from 4 to 7 p.m. for eight weeks.

"Industrial blueprint reading" with E. J. Madeo as instructor and "Introduction to supervision" with H. M. Rubin instructing will meet Mondays and Wednesdays beginning June 14.

E. C. White will instruct "shop math" on Tuesdays and Thursdays beginning June 15.

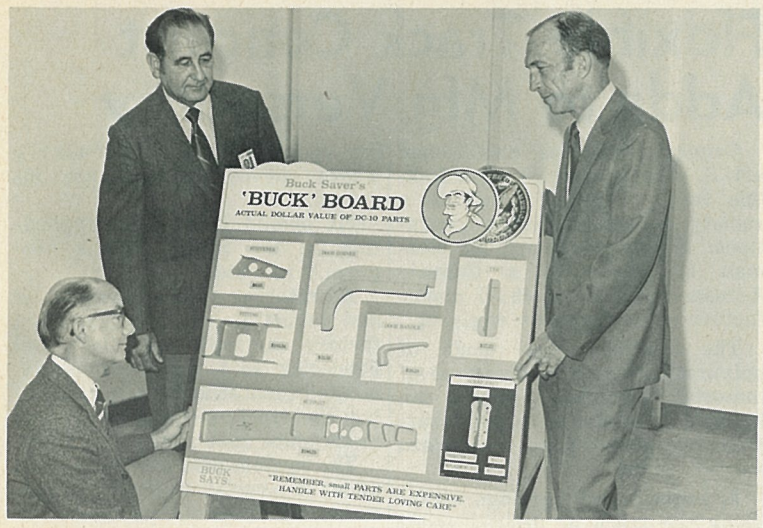
Cost will be $1 for Associated Student membership, payable at the first class meeting, plus textbooks and related materials.

Classes will have a limited enrollment with pre-registration advisable thru Helen Cook of educational services, ext. 2564 LF.

Adventurers Plan Kern River Jaunt

CRA Adventurers Club plans a Kern Plateau backpack over the Memorial Day holiday, May 29-31.

Approximately 320 miles from San Diego, members will rendezvous at Quaking Aspen at 8:30 a.m. Saturday and backpack into the Sequoia National Forest to the forks of the Kern and Little Kern rivers.



MONEY MATTER — Looking over one of seven display boards on cost of small DC-10 parts are, from left, A. R. Thompson, Dept. 517-0 communications specialist who designed boards; Dick Thompson, cost reduction coordinator for operations department; and Jack Hurt, DC-10 program manager.

'Buck Boards' Reflect Actual Cost of Parts on DC-10 at SD

Seven "Buck Boards" to show actual cost of small metal parts being used in DC-10 fuselage fabrication were placed on display last week in machine shop, fabrication, and assembly areas at Convair Aerospace-SD's Lindbergh Field plant.

"It made quite an impact," Dick Thompson, cost reduction coordinator for the operations department, said. "Most of the employes were amazed at the cost of these small parts they are working with every day."

Jack Hurt, DC-10 program manager, and Vince Cernuto, manager of manufacturing control, arranged for the seven double-sided display boards to be created to show 100 small DC-10 parts and cost of each, mostly in the $10 to $200 range, in an effort to reduce loss and damage incidence.

A. R. 'Tommy" Thompson, a communications specialist in the Lindbergh Field art and editorial section, designed and helped produce the displays.

Each board also carries a scrap part with information on its original cost and cost for its inspection rejection and replacement after it was found unacceptable for use.

"We can't hope to measure the effect of these displays too easily," Dick Thompson said. "But they sure are getting people to relate cost to the parts they are using on the job."

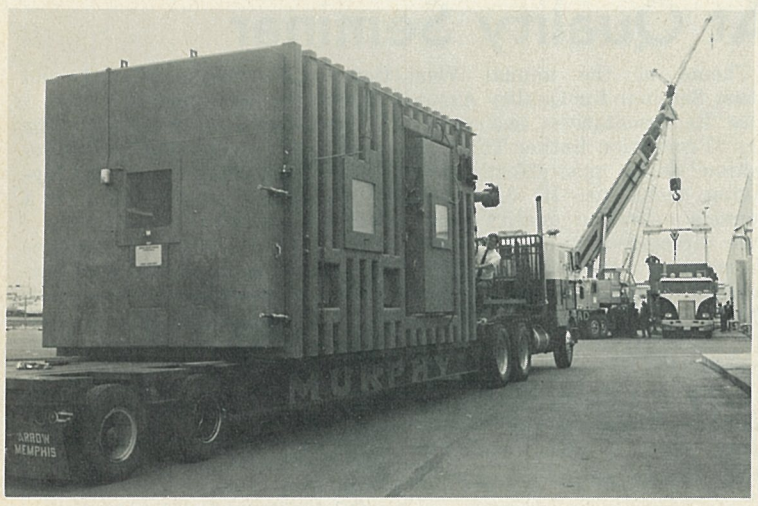
Wives Club Plans Potluck Luncheon

The Convair Wives Club has planned a membership potluck luncheon June 23 in CRA Clubhouse.

Social activity will start at 11:30 a.m. preceding luncheon at noon. A brief program is planned describing the club and scheduled activities for the year including craft sessions, various special events and monthly luncheons.

Membership in the club is open to wives of all General Dynamics employes in the San Diego area, DCAS, NASA and associate contractor personnel as well as wives of retired employes and widows of employes.

Reservations may be made by phoning Lorraine Hudson, 282-4774; Bea Costa, 223-6598; Vivian Inga, 448-2365; Margaret Brock, 583-1474.



TEST CHAMBER—Don Nirschl, Dept. 578-5 lead engineer, looks over versatile environmental chamber following its arrival from Rochester, N.Y., for use by Convair Aerospace-SD. Unit later was installed in Bldg. 15 at Kearny Mesa plant.

Environmental Test Chamber Put to Work at San Diego

A large special-built environmental chamber used five years at the former Electronics Division plant in Rochester, N.Y., has been installed in the west end of Bldg. 15 at Convair Aerospace-SD's Kearny Mesa plant for use in testing F-111 aerospace ground equipment units and other military and commercial products.

Located adjacent to the vibration laboratory, it will be operated by environmental test laboratories Dept. 578-5 personnel under George Conrey, group supervisor, with assistance from engineering test support Dept. 756-0.

Don Nirschl, Dept. 578-5 lead engineer, said the chamber can be used to subject test articles to temperatures ranging from –103 to 212 degrees F., humidity ranging from 10 to 98 percent, and at "altitude" to 50,000 feet.

The 45,000-pound unit includes an 8 x 8 x 16-foot walk-in chamber and a related cooling tower, compressors, and vacuum system.

Nirschl said the unit should be ready for operation this week and will replace an old environmental chamber previously used in Bldg. 6 at the Lindbergh Field plant.

The chamber and its support hardware, manufactured by American Research Corp., were trucked cross-country on two flatbed trailers on a trip that took 13 days and required payment of about $1,200 for state highway permits and escort services along the route.

3 Hoop Squads Gather Trophies

Members of three championship CRA plant league basketball teams—the Boogaloos, Underbrush, and Gasp — received trophies for their winning efforts at a barbecue chicken and potluck dinner for their families May 9 at Missile Park.

The Boogaloos, Sunday League champs with an 8-1 season record, defeated Underbrush, the Wednesday League champs, 58-52 in a playoff game for the overall plant championship.

In a playoff game for the Wednesday League crown, Underbrush had squeezed by Electro Dynamic, 63-61, on a long shot by Terry Dougherty in the last five seconds of play.

Gasp took the Thursday Slow-Break League title by defeating DatagraphiX in a playoff game. DatagraphiX had edged Potluck, 28-26, in an overtime period to lead in first-half season standings and Gasp had gone undefeated in its five games in second-half play.

Tennis Tournament Begins Next Week

CRA Tennis Club and Convair Management Association will sponsor a tennis tournament for employes and members of their families with competition in eight events scheduled weekends in June on Mesa College Courts.

Included are intermediate men's singles, 9 a.m., June 5; intermediate men's doubles, 9 a.m., June 6; novice men's singles, 9 a.m., June 12; novice men's doubles, 1 p.m., June 13; mixed doubles, 10 a.m., June 13; advanced men's singles, 9 a.m., June 19; advanced men's doubles, 9 a.m., June 20; and women's singles, 10 a.m., June 27.

Tournament chairman is Bob Herold, CRA commissioner. Reservations are being taken for the advanced division by Mike Griggs, ext. 2367 KM; intermediate division, Manuel Fernandez, 279-8014; novice division, Fred Halemba, 278-4708; and women's division, Connie Bates, ext. 2776 KM.

Double Header Outing Scheduled

Convair Management Association and Convair Recreation Association will sponsor an outing to the San Diego Padres-Chicago Cubs double header baseball games July 9 at San Diego stadium. The event will be open to all General Dynamics employes and friends and the first game begins at 6 p.m.

Loge section tickets will be $1.50 (a $1 saving) and plaza section tickets $2 (a $1.50 saving) and each will include a chance in a drawing in which the winner will receive a $500 vacation trip to the location of his choice. All seats will be reserved and there will be no discount for children.

Executive sponsor will be K. E. Newton, director of launch vehicle programs. Tickets will be available through all CRA outlets and other selected locations.

340 Keglers Roll In 30th Tourney

A total of 340 General Dynamics people competed in CRA Bowling Club's 30th annual handicap tournament.

First-place trophy winners included:

Mixed teams — The Misfits; Betty and Larry Salman, Erwin Jesse, and Eline and George Lang.

Men's teams—The Stressers; Chuck Kohler, Genser Phip, A. D. Viste, P. B. Bunch, and Paul Buchy.

Mixed doubles—Harriett Zaragosa and Jackie Janeck.

Men's doubles — John Jackman and Joe Rizzo.

Women's singles—Faith Korski.

Men's singles—Vic Cardiel.

Women's all-events — Jackie Janeck.

Men's all-events—Bill Erwin.

PERFORMANCE HONORS — Convair Craftsmanship sustained performance banners were awarded to three groups recently for outstanding performances during three-month period. In lower photo, John Wild (left center), director of engineering technologies, presents research and engineering department banner to Richard Martin for dynamics group. In top photo, M. C. Curtis, right, vice president and general manager, and J. M. Adamson, left, director of operations, present banners to Tom Henry, second from left, and Art Braidic for manufacturing assembly and production control functions, respectively. Winning groups were cited for exemplary performance toward goals.

CRA Calendar

(For information on CRA activities call CRA headquarters, ext. 1111 KM. Deadline for next issue of GD/NEWS is June 1. Call ext. 1071 LF or 3322 KM. All meetings are held in CRA clubhouse unless otherwise noted.)

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ADVENTURERS—Kern Plateau backpack, May 29-31.

BADMINTON—Call Al Van Norman, 222-4867, for information.

BICYCLE CLUB—Call Bob Williams, ext. 1626 KM for information.

BONAIR FLYERS — Meet 7:30 p.m., June 3.

BRIDGE — Duplicate bridge sessions, 7:30 p.m. each Friday.

CERAMICS—Meet 9 a.m. - noon and 7-10 p.m., Tuesdays and Thursdays.

CHORUS—Rehearsals 7:30 p.m. each Monday.

COUNTRY & WESTERN MUSIC — Meet 7:30 p.m. Thursdays, CRA Missile Park picnic shelter.

FENCING — Workouts and instruction 7:30 p.m. Fridays. YWCA, 10th & C Sts.

GOLF—Coronado tourney, 6:30 a.m. tee-off, June 12-13.

HEALTH CLUB—Open 9:30 a.m. - 10 p.m., Monday through Thursday; 9:30 a.m. - 9 p.m., Fridays; 9 a.m. - noon, Saturdays; "women only" weekdays, 9:30-11 a.m.

HI-FI MUSIC—Meet 7:30 p.m. June 8.

ICE SKATING—GD family skate night 6:15-7:45 p.m. each Thursday, House of Ice, Interstate 8 and Lake Murray Blvd. Flat rate fee $1 (includes skates).

JUNIOR SCIENCE—Meeting 7:30 p.m. June 4.

MINIATURE RAILROAD—Operating sessions Saturdays, Sundays, and holidays, CRA Missile Park.

MODEL HO RAILROAD—Work sessions 7 p.m. each Tuesday, CRA Missile park.

RADIO CLUB — Meeting 7:30 p.m. June 3.

RETIREES—Luncheon meeting, 11:30 a.m., June 8.

RIDING CLUB — All-western horse show, June 20. Pinecrest campout, July 9-10.

RIFLE CLUB — Senior shoot 7 p.m., May 26. Junior shoot 9 a.m., June 5. Gillespie Field Range.

ROADRUNNERS — Meet 7:30 p.m., May 27, Gillespie Field Clubhouse.

SAILING—Meeting 7:30 p.m. tonight (May 26).

SCULPTURE—Workshop sessions 7:30 p.m. each Monday.

SKI CLUB—Water skiing each Wednesday, 5 p.m., Crown Point landing. Meeting 7:30 p.m., June 2, South Bay Club recreation room.

SQUARE DANCE — Dance 8-10 p.m. Thursdays.

STAMP CLUB—Meet 7:30 p.m., May 27.

SWIMMING—Family swim night 7-9 p.m., June 19, Mission Beach Plunge. Tickets at employe benefits, 5 cents.

TENNIS—Tournaments starting June 5, call Bob Herold, ext. 2658 LF for information.

TOASTMASTERS—Convair Toastmasters meet 4:30 p.m. each Wednesday. Dynamic Toastmasters meet 5:30 p.m. Thursdays.

TRAILERS—Meet 7:30 p.m. June 1.

WIVES CLUB — Knotts Berry Farm and Hollywood bus tour, May 26. Membesrhip potluck luncheon, June 23.

WOMENS GOLF—Mission Bay tourney, June 12, 8 a.m. tee-off.

CRA Horsemen Plan All-Western Show

CRA Riding Club has scheduled an all-western horse show June 20 in the Missile Park riding ring. The show will be open to all riders with a $1 entry fee for each class.

A campout at Pinecrest, where club members are building new corrals, also is scheduled July 9 and 10 with riding, swimming, and other activities planned.

Officers said the club's April 18 western show "turned out to be a success with a fair number of spectators in the bleachers" in spite of cold winds and rain that delayed start of the show about 1½ hours.

Prospective new members are invited to Riding Club meetings at 7:30 p.m. the second Wednesday of each month in the CRA Clubhouse.

Schneider Scores Third Double Win

Red Schneider scored a double win for the third consecutive time in CRA Pistol Club's meet May 9 by firing first in master class, 297, on the .22 police course and first in the center-fire national match, 260.

Bill Dittmann was first in expert class, 267, and Art Lewis first in sharpshooter class, 260, in the .22 police course competition. Jim Halfacre was second at 247 in the center-fire national match.

Tickets on Sale For Day at Races

Tickets are on sale through Convair Management Association outlets for a "day at the races" June 13 at Agua Caliente Turf Club in Tijuana. Cost is $2.75 (a $1 saving).

Margarita cocktails will be served at noon and a deluxe buffet at 1 p.m. Free bus transportation from the border will be provided at 11 a.m. for those not wishing to drive in Mexico—with buses leaving for the return trip at 5:30 p.m.

Mike Alianelli, chairman for the special event, said normal attire (including coat and tie for men and dresses for ladies) is requested of those attending.

SKYLINER—Canadair CL-215, on loan from Province of Quebec to fight forest fires in Florida Everglades, is shown passing Fort Lauderdale.

Canadair Water Bomber Demonstrates Drops For Congressmen, Gov't Agencies

Canadair's CL-215 water bomber showered the nation's capital May 11 with an impressive display of aerial firefighting techniques which have saved countless acres of woodland in the United States, Canada, Spain and France.

Before an audience of about 150 Congressional, governmental and press representatives, a CL-215 from the 15-plane fleet of the Province of Quebec showed how the unique aircraft scoops six tons of water into its twin tanks and pours salvo after salvo on blazing timber.

The aim of the demonstration on the Anacostia River, a mile or so from the capitol, was to convince members of Congress and officials of federal agencies that there is a need for a fleet of the planes in the United States under government auspices. General Dynamics has proposed that the U.S. Forest Service purchase three of the planes for evaluation.

Representative Barry Goldwater Jr. (R-Calif.) announced just prior to the airplane's display that he would introduce legislation aimed at authorizing federal purchase of 30 to 40 of the CL-215 aircraft for lease to private operators.

"We have to have equipment that will stop these forest fires before they get out of control," said Goldwater, whose district was among California areas beset by wildfires in late 1970. Goldwater was among six California Congressmen who subsequently called for a new look by federal officials at aerial firefighting possibilities—particularly the CL-215, the only plane specifically designed to combat forest blazes.

The congressman followed through by pressing his proposal on May 19 in testimony before the forestry subcommittee of the House Agriculture Committee.

In the Washington, D.C. demonstration, CL-215 Pilot Jacques Robert put his red and yellow amphibian through its paces while Ron Pickler, Canadair marketing manager for the craft, narrated. The plane made four scoops and four water drops as well as several high speed passes.

The event drew widespread press and television attention, the Washington Star's account noting that while aerial firefighting has gone on since the late 1940s "the CL-215 has brought it to a new dimension, with a bigger water load, quicker pickup, greater maneuverability."

"Today it was only a demonstration—a dramatic one, but already in Canada, in the U.S., and in Europe, the CL-215 has proven its devasting effect on forest fires," said one TV newsman against a backdrop of film showing the plane in action.

Electric Boat Study Aims at Saving Water by Recycling in Households

Many of the nation's pollution and water problems could be relieved if people used less water. This may now be within reach, according to environmental engineers at Electric Boat Division, conducting a two-year study program on the subject. The program includes the testing of water-saving devices in Connecticut and California.

The average household could consume 30 to 50 per cent less water without the least change in habits, and save money as well, if the program achieves the expected goals.

Says Harold Wallman, chief of chemical and environmental engineering, "Such household water savings would have a big impact on municipal waste treatment and fresh water supply, because it would be coupled with water-saving and treatment already practiced by many industries."

The two-year program, managed by Wallman, will compare normal household water use with consumption after installing inexpensive, commercially available water-saving plumbing.

"These plumbing devices permit recycling of bath and laundry water, restriction of shower flow, and other usage reductions," Wallman says. "We should see savings of 30 to 50 per cent."

"The devices are not expensive," Wallman continues. "In an average house the whole re-plumbing job should pay for itself in a few months through savings in water flow and water heating."

The program is being conducted under contract to the Water Quality Office of the Environmental Protection Agency. It follows up a feasibility study the company made in 1969 for WQO's predecessor, the Federal Water Quality Administration.

Eight test households of General Dynamics employes have been selected for the test series. Six of the households are of Electric Boat Division employes: Andrew J. Ciminera, George J. Erkan, Donald Manley, Paul F. Murphy, Gordon W. Thompson and Wallman, all of research and development. The other two households are of C. Douglas King and Roy F. Holmes of Convair Aerospace Division, San Diego, Calif.

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Convair Families Taking Part In EB Water-Saving Study

Two Convair Aerospace-SD families will water their lawns with recycled bath and laundry water and take flow-restricted showers in a two-year study conducted by Electric Boat Division for the Water Quality Office of the Environmental Protection Agency.

Results of the study, in which six Electric Boat families also are participating, are expected to show how use of inexpensive water-saving plumbing and recycling devices can reduce home water use up to 50 per cent.

Doug King and Roy Holmes, both of Convair Aerospace-SDs life sciences Dept. 592-0, have had plumbing in their homes equipped with flow-meters to record normal use, during the first six months of the study. Readings will be taken daily and weekly of water use.

Three types of additional devices then will be installed for one year to restrict flow to shower heads, equip toilets with dual-cycle traps to permit use of either small or larger quantities for flushing, and to collect waste bath and laundry water and disinfect and filter it for lawn watering.

Be sure to use the ZIP code when addressing mail. It speeds up delivery!

Flexible Track Concept Adds to Mfg. Versatility

General Dynamics was issued a U.S. patent April 20 for a flexible track concept for use in a variety of manufacturing operations. It was developed by Norman L. Frederick, a Convair Aerospace-SD Dept. 491-0 manufacturing development engineer.

The flexible track, made of polyurethane or a similar type of material, is molded so that it can be held in place on curved surfaces by vacuum from a standard vacuum pump.

A motor-driven carriage moves along the track at desired speed to carry a tungsten inert gas welding head, a cutting head, a router, or another tool for work desired on a surface adjacent to the track.

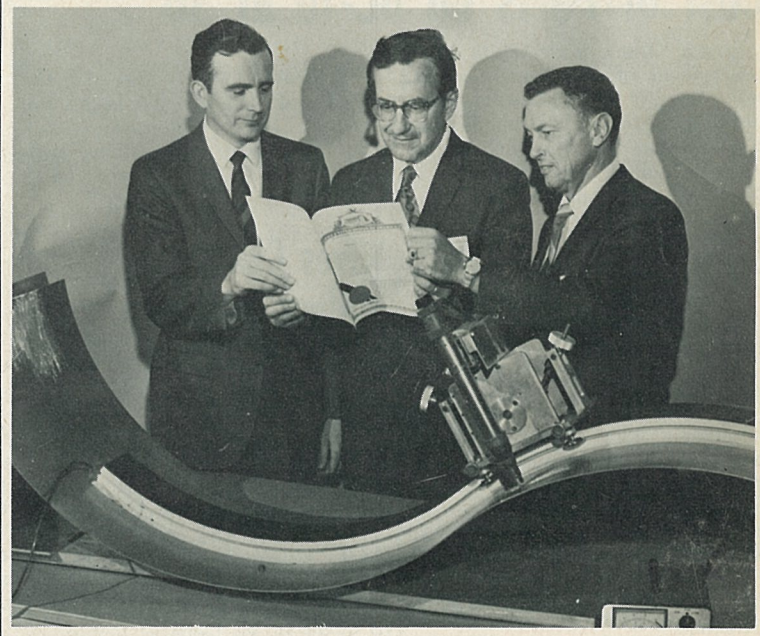
G. A. Grossaint, chief of manufacturing services, said the concept is ideal for use on short-run or one-of-a-kind manufacturing operations — particularly where curved surfaces are involved.

"It should have wide application on the Space Shuttle program," he said.

A prototype system was devised and tested in the Kearny Mesa factory in 1967 and 1968 and Frederick said further improvements in material for use in molding the track sections have been made since that time.

The system also has been used, under a special licensing agreement, by Republic Aviation of Farmingdale, N.Y., on a test program related to supersonic transport development.

C. E. Roye, supervisor of manufacturing development, said the flexible track sections can be molded at low cost, assembled and disassembled quickly, and used many times on surfaces with different configurations.



PATENT PEERING—Looking over recently issued patent for flexible track for use in manufacturing operations, from left, are John Duncan, Convair Aerospace-SD patent counsel; N. L. Frederick, Dept. 491-0 manufacturing development engineer who developed concept; and J. M. Adamson, director of operations. Track is held to curved surface by vacuum.

'Prevention' Emphasized At Quality Seminar

Theme of the annual West Coast Seminar for Quality Assurance Representatives last month was "Prevention Rather Than Detection" as the most effective cost saving technique. H. J. Stuart, Pomona operation quality assurance director, and A. C. Villere, manager of purchased material quality, hosted the seminar held Friday and Saturday, April 16 and 17, at Griswold's Indian Hill Restaurant.

QARs from the Midwestern and Western United States participated with in-plant personnel from quality assurance, production engineering, material and purchasing departments.

Villere set the theme for the seminar by presenting the philosophy that progressive and dynamic quality management is a prerequisite to business success.

J. C. Schulz, chief of mechanical receiving inspection and supplier control, conducted the seminar and stated that quality control is one of the most economical and profit contributing factors in business management. He discussed cost saving techniques for purchased material quality and new ideas and proposals to implement them.

Other discussion topics during the two-day seminar included: "Motivational Techniques for and by QARs," "Effective Corrective Action," "Economic Use of Interchange," "Inspection Planning for Field Use," "Positive versus Negative Quality Approach," and "Procurement Manual Changes."

Guest speakers included: W. B. Adelman, chief of production engineering; R. E. Glass, material adviser; and J. D. Currier, general purchasing agent. Speakers from purchased material quality included: H. T. Bolduc, W. E. O'Brien, F. H. Jacob, K. W. Strowig, D. R. Brothers, A. G. Violet and R. P. Collins.

QARs attending were: R. L. Ballard, B. H. Genger and E. H. Hayes from Los Angeles area; B. H. Caldwell and B. G. Mercer from Dallas, Texas area; S. D. Haas from Denver, Colo. area; and J. L. Sartain from the Phoenix, Ariz. area.

Attending from other General Dynamics operating units were: Clyde King of Convair Aerospace Division, Fort Worth operation, and B. Huot and Howard Moorehead of Electro Dynamic Division, San Diego operation.

NY VISITORS — Five U.S. Air Force "Education-With-Industry" officers, four from Fort Worth operation and one from San Diego, were briefed at New York Headquarters recently on indoctrination trip. Seated, from left, Lt. Col. William Shaffer, Algie A. Hendrix, Corporate vice president, Bob J. Robison, Corporate director of public affairs. Standing: Capt. Cary Lovelace, Harold D. Ramsey of Fort Worth, Major Frederick G. Ten Hoor, Capt. James Muehleisen, Capt. James E. Underwood.